

2003

Necessity Makes the Frog Jump: Land-Use Planning and Urban Agriculture in Cuba

Colin Crawford

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Citations:

Bluebook 21st ed.

Colin Crawford, Necessity Makes the Frog Jump: Land-Use Planning and Urban Agriculture in Cuba, 16 TUL. ENVTL. L.J. 733 (2003).

ALWD 6th ed.

Crawford, C. ., Necessity makes the frog jump: Land-use planning and urban agriculture in cuba, 16(Special Issue) Tul. Envtl. L.J. 733 (2003).

APA 7th ed.

Crawford, C. (2003). Necessity makes the frog jump: Land-use planning and urban agriculture in cuba. Tulane Environmental Law Journal, 16(Special Issue), 733-782.

Chicago 17th ed.

Colin Crawford, "Necessity Makes the Frog Jump: Land-Use Planning and Urban Agriculture in Cuba," Tulane Environmental Law Journal 16, no. Special Issue (Summer 2003): 733-782

McGill Guide 9th ed.

Colin Crawford, "Necessity Makes the Frog Jump: Land-Use Planning and Urban Agriculture in Cuba" (2003) 16:Special Issue Tul Envtl LJ 733.

AGLC 4th ed.

Colin Crawford, 'Necessity Makes the Frog Jump: Land-Use Planning and Urban Agriculture in Cuba' (2003) 16(Special Issue) Tulane Environmental Law Journal 733.

MLA 8th ed.

Crawford, Colin. "Necessity Makes the Frog Jump: Land-Use Planning and Urban Agriculture in Cuba." Tulane Environmental Law Journal, vol. 16, no. Special Issue, Summer 2003, p. 733-782. HeinOnline.

OSCOLA 4th ed.

Colin Crawford, 'Necessity Makes the Frog Jump: Land-Use Planning and Urban Agriculture in Cuba' (2003) 16 Tul Envtl LJ 733

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Necessity Makes the Frog Jump: Land-Use Planning and Urban Agriculture in Cuba

Colin Crawford*

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I. INTRODUCTION

Brazilians have an expression; they say: *a necessidade faz o sapo pular*. "Necessity makes the frog jump." Other languages have a comparable expression, but for purposes of the topic of this Article—namely the land-use planning ramifications of Cuba's more than decade-long experiment with urban organic agriculture—the Brazilian Portuguese expression better captures the urgency of the situation that Cuba faced when, just under a decade ago, it was forced to find new ways to feed its population. The equivalent expression in both Spanish and English, "necessity is the mother of invention"¹ is abstract; "necessity" is not an organic thing you can touch, smell, or eat. A frog, by contrast, can be touched, smelled, or eaten—or it can, with a quick jump, avoid being eaten.

Like the frog in the Brazilian phrase, there is no question that Cuba jumped into the world of urban organic agriculture out of necessity. This jump, compelled by the collapse of the Soviet Union and the subsequent tightening of the U.S. economic embargo, was necessary because of a crisis that touched every single Cuban.² The health and well-being of the Cuban people were at stake and, had the nation not worked to put every available free spot of land into service for food production, its problems could have been substantially worse.³ It is no exaggeration to say that, for many Cubans, the nation's very survival seemed to be threatened.⁴

1. "*La necesidad es la madre de la invención.*"

2. See, e.g., CATHERINE MURPHY, FOOD FIRST INST. FOR FOOD & DEV. POLICY, CULTIVATING HAVANA: URBAN AGRICULTURE AND FOOD SECURITY IN THE YEARS OF CRISIS 8-9 (1999).

3. See, e.g., Peter Rosset, *Introduction: Lessons of Cuban Resistance*, in SUSTAINABLE AGRICULTURE AND RESISTANCE: TRANSFORMING FOOD PRODUCTION IN CUBA xvi (Fernando Funes et al. eds., 2002) [hereinafter SUSTAINABLE AGRICULTURE AND RESISTANCE]. ("In the early 1990s, average daily caloric and protein intake by the Cuban population may have been as much as 30% below levels in the 1980s."); MINOR SINCLAIR & MARTHA THOMPSON, CUBA: GOING AGAINST THE GRAIN: AGRICULTURAL CRISIS & TRANSFORMATION 3 (2001) ("The absence of foreign exchange meant that Cuba could not import the basic foodstuffs to provide sometimes even the minimum for its population. People went hungry. Cuba was on the border of total collapse."). Sinclair and Thompson work for Oxfam America, the principal U.S. nongovernmental organization (NGO) involved in Cuba. For a list of its Cuban initiatives, see OXFAM AM., 2001 ANNUAL REPORT 24-25 (2001). Their suggestions for NGOs appear at MINOR SINCLAIR, NGOS IN CUBA: PRINCIPLES FOR COOPERATION (Oxfam Am. Working Paper No. 3, Mar. 18, 2000).

4. As many commentators have noted, the loss of Soviet food subsidies and the simultaneous increase in energy-consuming, nonfossil fuel-saving locomotion resulted in

Some Cubans benefited directly from this mini-revolution in food production and distribution because of their involvement in making it happen. But for a large percentage of the population, the "Special Period in Peacetime"⁵ brought food production and distribution closer to home.⁶ Not only did this mean that many Cubans were able to eat food that was fresher and healthier than before, it also meant that consumers were offered a greater variety of food, available at a lower cost, than the foodstuffs offered in the official government markets.⁷ In the long-term, this development promises to help turn around Cuba's sustained and—in terms of food security and self-sufficiency—disastrous sugar monoculture.⁸ Provided that this national "experiment" with urban organic

nutritional deficits and other health disorders, including an eye disorder causing temporary blindness. MURPHY, *supra* note 2, at 8.

5. See Carmen Diana Deere et al., *The View From Below: Cuban Agriculture in the 'Special Period in Peacetime'*, 21 J. PEASANT STUDIES 194 n.1 (1994) (referencing the August 1990 energy conservation measures that gave rise to the term).

6. See MURPHY, *supra* note 2, at 8-11; Scott Graham Chaplowe, *Havana's Popular Gardens and the Cuban Food Crisis* 43-46 (1996)(unpublished thesis submitted in partial satisfaction of the requirements for the degree Master of Arts in Geography, University of California at Los Angeles) (on file with author).

7. Chaplowe, *supra* note 6, at 55-58. The health benefits of urban agriculture are well established. See, e.g., DONALD B. FREEMAN, *A CITY OF FARMERS: INFORMAL URBAN AGRICULTURE IN THE OPEN SPACES OF NAIROBI, KENYA* 106 (1991); INT'L DEV. RESEARCH CTR., *CITIES FEEDING PEOPLE: AN EXAMINATION OF URBAN AGRICULTURE IN EAST AFRICA*, at xi, xii, 80-81 (1994) [hereinafter IDRC]; U.N. DEV. PROGRAMME, *URBAN AGRICULTURE: FOOD, JOBS AND SUSTAINABLE CITIES* 160-65 (1996) [hereinafter UNDP]; ISABEL WADE, *CITY FOOD: CROP SELECTION IN THIRD WORLD CITIES* 2-3 (1986); see also MURPHY, *supra* note 2, at 43 ("Neighborhood production has greatly increased local self-sufficiency by growing the food right where it is eaten. This increases community food security enormously, making food more affordable and available."); Nelso Companioni et al., *The Growth of Urban Agriculture, in SUSTAINABLE AGRICULTURE AND RESISTANCE*, *supra* note 3, at 235, n.1 ("At the time of the final editing of this volume, an estimated 90% of the fresh produce consumed in Havana is being produced in and around the city."). This is not, however, to slight the government markets, which made a striking impression on this visitor to Cuba. One market our group saw near the Ministry of Agriculture had signs posted that listed not only the prices of the fruits and vegetables on sale, but also their nutritional values. In its quiet way, this communicated the reality of the government's much-heralded literacy and educational successes, since of course only a literate, educated population could read and process such information. On the Cuban success with literacy and education, see *infra* note 18.

8. As the Cuban adage goes, "*sin azúcar, no hay país*" ["without sugar, there is no country"]. Chaplowe, *supra* note 6, at 13. The development of the Cuban sugar monoculture dates back nearly four hundred years, and extended through Spanish, U.S., and eventually Soviet control of the Cuban economy. See SINCLAIR & THOMPSON, *supra* note 3, at 18-32. The United States played a key role in creating this monoculture, with large portions of Cuba's arable land owned by U.S. sugar interests. MURPHY, *supra* note 2, at 6. But it is also true that the current government perpetuated this regrettable and unsustainable policy in a trade practice consisting of a sugar-for-oil swap with its Soviet Bloc allies. See, e.g., Chaplowe, *supra* note 6, at 29-38 (quoting, inter alia, President Fidel Castro to the effect that "[t]he sugar industry is the great producer of foreign exchange, the producer of the resources the country needs in order to finance its operation of the rest of the economy and the services sector").

agriculture becomes a permanent fixture of the nation's economic life, it will be no exaggeration to say that Cuba can serve as an international model for food self-sufficiency and environmentally sustainable agriculture.⁹ In this, Cuba's example may also come to stand as a rebuke to the increasingly dominant international agribusiness model of food production, a model that, arguably, is as disastrous in its way for the world food system as the sugar monoculture has been for Cuba.¹⁰

Cuba's experiment in sustainable urban agriculture, however, faces many challenges, not the least of which are the demands of urban growth in the years ahead, and particularly the pressures Cuba will likely experience once the U.S. economic embargo is lifted.¹¹ Indeed, one need

9. Carmen Diana Deere, *Cuba's Struggle for Self-Sufficiency*, 43 MONTHLY REV. 55 (1991); Richard Levins, *The Unique Pathway of Cuban Development*, in SUSTAINABLE AGRICULTURE AND RESISTANCE, *supra* note 3, at 276-80 (praising Cuba's continuing commitment to feeding its population with "socialist agriculture" and concluding that "Cuba is creating something truly new and hopeful for all of humanity").

10. See Joseph Kahn, *The Science and Politics of Super Rice*, N.Y. TIMES, Oct. 22, 2002, at C1 (describing Chinese resistance to, and fear of competition from, genetically modified U.S. food imports); Mark Shapiro, *Sowing Disaster: How Genetically Engineered American Corn Has Altered the Global Landscape*, THE NATION, Oct. 28, 2002, at 11; see also J. BISHOP GREWELL, FARMING FOR THE FUTURE: AGRICULTURE'S NEXT GENERATION (PERC Policy Series No. Ps-26, 2002) (criticizing U.S. agricultural policy from a property rights/libertarian perspective). For a version of the argument against industrial agriculture from a non-U.S. perspective, see, e.g., VANDANA SHIVA ET AL., LICENSE TO KILL: HOW THE UNHOLY TRINITY—THE WORLD BANK, THE INTERNATIONAL MONETARY FUND AND THE WORLD TRADE ORGANISATION ARE KILLING LIVELIHOODS, ENVIRONMENT AND DEMOCRACY IN INDIA 5-58 (2000); VANDANA SHIVA ET AL., SEEDS OF SUICIDE: THE ECOLOGICAL AND HUMAN COSTS OF GLOBALISATION OF AGRICULTURE 1-14 (2000); VANDANA SHIVA, THE VIOLENCE OF THE GREEN REVOLUTION: THIRD WORLD AGRICULTURE, ECOLOGY AND POLITICS 19-25 (1991). See also Leonard Cavise, *NAFTA Rebellion: How the Small Village of Chiapas Is Fighting for Its Life*, 21 HUM. RTS. 36, 36-39 (1994) (linking the NAFTA accords with destabilizing Mexican land values and thus agrarian practice); Andy Gutierrez, *Codifying the Past, Erasing the Future: NAFTA and the Zapatista Uprising of 1994*, 4 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 143, 150 (1998).

11. See, e.g., Héctor Cuervo Monsoné et al., *40 Años de la planificación física en Cuba: logros, experiencias y retos*, 1 PLANIFICACIÓN FÍSICA CUBA 3 (2001) (noting, for example, the need for "[n]ational studies to demonstrate problems like internal population migrations or to illustrate the potential and limitations for the development of the country's municipalities" ["[e]studios nacionales para evidenciar problemas, tales como las migraciones internas de población, o dar elementos sobre los potenciales y limitaciones para el desarrollo de los municipios del país"]); (copy on file with author); see also SERGIO DÍAZ-BRIQUETS & JORGE PÉREZ-LÓPEZ, CONQUERING NATURE: THE ENVIRONMENTAL LEGACY OF SOCIALISM IN CUBA 236-40 (2000) (noting the challenges to growth for Havana). To the ears of this U.S. listener, the naiveté of our Cuban hosts on this issue was quite astonishing. As noted *supra* note 10, countries far larger and more powerful than Cuba swim against the tide to resist the juggernaut of industrial agriculture. See also Glenn Switkes, *Competition Between Brazil, U.S. Growers Needs Unmasking*, 73 FEEDSTUFFS 18 (2001) (alleging millions of acres of Japanese-supported soy plantations have destroyed environmental quality in Brazil for two decades). To suggest that this will be a problem for Cuba enjoying freer trade and not suffering the privations of a U.S. blockade is not to suggest that Cuba will become a U.S. lackey; merely that there is likely to be popular support for the possibility of cheap and more widely available food. One thing that our visit

not look beyond U.S. shores to identify examples of promising efforts to anchor urban agricultural projects that were foiled by greater economic pressures and interests.¹²

This Article addresses the land-use planning implications of Cuban urban organic agriculture. Part II begins by briefly placing the Cuban urban agricultural experience in an international context, noting that many of the successes, and potential threats to, Cuban urban agriculture share features similar to efforts in other countries both more and less developed than Cuba. In light of this context, Part II will then evaluate the implications of urban agriculture for Cuban land-use planning. To this end, Part II will identify the advantages of urban agriculture for urban living. In addition, Part II will also describe the Cuban effort to formalize what was at first a haphazard effort, and highlight problem areas in the ongoing institutionalization of urban agriculture. Part III will examine the formal and informal efforts of Cuban lawyers and planners, primarily working through government agencies, to secure a place for urban agriculture in Cuba's long-term agricultural and land-use planning. Part IV then outlines ideas for domestic and international action that Cuban officials may take as they work to maintain a system of urban agriculture before and after the U.S. embargo.

confirmed for me is that Cuba needs to have in place a stronger plan to act as a bulwark against the onset of industrial agriculture, if that is what it wants. Permanent urban agriculture, this Article aims to suggest, could be an important part of that bulwark.

12. The difficulty of one Boston, Massachusetts, community's successful struggle to maintain urban gardens in the face of development pressures is partly described in PETER MEDOFF & HOLLY SKLAR, *STREETS OF HOPE: THE RISE AND FALL OF AN URBAN NEIGHBORHOOD* 181-83 (1994) (recounting the story of the Dudley Street Neighborhood Initiative (DSNI)). See also William A. Shutkin, *Legal Advice to Nature: Counseling the Environment on What to Expect from the New Environmental Initiatives*, 33 NEW ENG. L. REV. 691, 693-95 (1999) (discussing the role of urban agriculture at DSNI). DSNI today focuses its urban agriculture work on a community greenhouse, a community garden, and a small orchard. E-mail from Trish Settles, Staff member, DSNI, to author (Sept. 18, 2002). Community gardens have faced similar difficulties in New York City. See Jane E. Schukoske, *Community Development Through Gardening: State and Local Policies Transforming Urban Open Space*, 3 N.Y.U. J. LEGIS. & PUB. POL'Y 351, 386-88 (1999-2000) (discussing a particular lawsuit). Compare Alexander Gavrilov and the St. Petersburg Urban Gardening Club, Russian Federation, *Urban Agriculture in St. Petersburg Russian Federation Conducted by the Urban Gardening Club: Past, Present and Future Perspectives*, WORLD HEALTH ORGANIZATION REGIONAL OFFICE FOR EUROPE SERIES ON URBAN FOOD SECURITY Case Study 1 (2000) (noting the nutritional deficiencies of residents of one large city in the Russian Federation and suggesting that an increased focus on ecology, especially rooftop gardens, is a key way to combat these problems), with James Petts, *Urban Agriculture in London*, WORLD HEALTH ORGANIZATION REGIONAL OFFICE FOR EUROPE SERIES ON URBAN FOOD SECURITY Case Study 2 (2001) (describing the faltering market for urban agriculture in greater London, arguing that, despite the expense of urban land and perceptions that land can be better used for housing and other purposes, there is still an important role for urban gardens).

Part V, which draws upon the lessons learned by other urban agricultural efforts around the world, briefly considers what Cuba will have to do from a legal and regulatory point of view in order to maintain a sustainable urban agricultural system. To the extent that the Cuban example is unexceptional, the conclusion then urges other jurisdictions to consider the value of formally implementing urban agriculture into their planning process.

II. THE LONG-TERM PROMISE AND CHALLENGE OF GROWING FOOD CLOSE TO THE CUBAN TABLE

A. *Urban Agriculture in a Global Context*

In global terms, and particularly in developing countries, urban agriculture is a common aspect of urban life.¹³ As in Cuba, an obvious advantage of urban agriculture is that the use of unused or under-used urban land can promote food self-sufficiency.¹⁴ This can be particularly important for a country like Cuba, which has traditionally been dependent on agricultural exports for foreign exchange, and where large portions of its arable land are devoted not to direct provisioning of the national food supply, but to the production of crops, primarily sugar, that will be sold abroad for foods not grown in Cuba.¹⁵ In addition, in a country, again like Cuba, with a deficient transportation infrastructure, urban agriculture provides a ready source of the most perishable, and some of the most nutritious, foodstuffs, such as green leafy vegetables.¹⁶ Impressive accomplishments in perishable food production in the middle of large cities¹⁷ suggest, therefore, that Cuba's goal of self-sufficiency in some locally grown foodstuffs is well within reach, particularly for a

13. See, e.g., FREEMAN, *supra* note 7, at xiii; Chaplowe *supra* note 6, at 4.

14. This is a central goal of urban agriculture in most places. See, e.g., IDRC, *supra* note 7, at 4 (urging that self-sufficiency be made a goal of urban planning to the extent that cities are nearly self-sufficient in perishable food crops). On food self-sufficiency as a Cuban goal, see Marcos Nieto & Richard Delgado, *Cuban Agriculture and Food Security*, in SUSTAINABLE AGRICULTURE AND RESISTANCE, *supra* note 3, at 40-56.

15. Astonishingly for the first-time student of Cuba, many of the foods central to the Cuban diet (wheat, rice, and black beans) are almost not grown there at all. See, e.g., Chaplowe, *supra* note 6, at 35. Although rice, like wheat and black beans, is a staple of the Cuban diet, during the 1990s, the country was producing just about 50% of national needs, about the same level as in 1862. Armando Nova, *Cuban Agriculture Before 1990*, in SUSTAINABLE AGRICULTURE AND RESISTANCE, *supra* note 3, at 34-35.

16. See MURPHY, *supra* note 2, at 41.

17. In the mid-1980s, for instance, the Chinese city of Shanghai produced more than three-quarters of the vegetables consumed in the city. See IDRC, *supra* note 7, at 14; cf. Companioni et al., *supra* note 7, at 235 n.1.

country with as well-educated a populace as Cuba's.¹⁸ In contrast to some other countries, the possible long-term success of urban agriculture in Cuba benefits from a population with a relatively high degree of scientific and technical education,¹⁹ and one that lives and works in a country organized for the last forty-three years on a highly centralized basis. Both of these features of Cuban life bode well for sustainable urban agriculture's permanent integration into Cuban agricultural and land-use planning. This is particularly the case when compared to a country where urban agriculture is viewed as a desperate subsistence measure of the urban poor.²⁰

At the same time, Cuban urban agriculture faces similar challenges to urban agricultural efforts throughout the world.²¹ This is true in at least four respects, all of which bear importantly upon land-use planning questions. First, lack of access to land is a greater problem than a lack of

18. Whatever one thinks of the Cuban Revolution, its achievements in education are impressive and an ever-celebrated aspect of Cuban society. See, e.g., *El próximo septiembre será inolvidable por su trascendencia para la educación en Cuba* ["Next September Will Be Unforgettable in Its Importance for Cuban Education"], GRANMA, Aug. 14, 2002, at 3 (reprinting a speech of President Castro, celebrating the country's educational successes); see also SINCLAIR & THOMPSON, *supra* note 3, at 15. Nonetheless, food self-sufficiency for Cuba will not be easy, as supporters and critics of the current regime all recognize. See DÍAZ-BRIQUETS & PÉREZ-LÓPEZ, *supra* note 11, at 90-92 (presenting a less sympathetic view, questioning the ability to meet this goal); Nieto & Delgado, *supra* note 14, at 46-49 (presenting a view favorable to the government expressing difficulties in reaching the goal). "Public spending on education in Cuba amounts to about 6.7% of gross national income, twice the proportion in other Latin American and Caribbean countries," a fact that has garnered the approval of the World Bank. Jim Lobe, *Learn from Cuba, Says World Bank*, INTER PRESS SERV., Apr. 30, 2001, available at <http://www.foodfirst.org/cuba/news/2001/wb-ips.html> (reporting remarks of World Bank President James Wolfensohn extolling social achievements of Cuban Revolution).

19. SINCLAIR & THOMPSON, *supra* note 3, at 15-17; Luis García, *Agroecological Education and Training*, in SUSTAINABLE AGRICULTURE AND RESISTANCE, *supra* note 3, at 97-106. On August 13, 2002, this author was in a group that, under the oversight of Egidio Paez Medinal, President of the Cuban Association of Agricultural and Forestry Experts, Havana Chapter (*Presidente de la Asociación Cubana de Técnicos Agrícolas y Forestales (ACTAF) Filial de la Ciudad de la Habana*), toured a Credit and Service Cooperative that employed, among others, a trained engineer, economist, marketing expert, and a lawyer, all of whom were pursuing not their professions as such, but rather were working to improve the yields of the cooperative.

20. See IDRC, *supra* note 7, at 83 (describing agricultural migration in Kenya). In Cuba, such agricultural migration is said to be less common. See, e.g., Chaplowe, *supra* note 6, at 68-69.

21. Despite the conference that led to the production of these articles on sustainability in Cuba in the twenty-first century and many useful interchanges during our week there, follow-up information has been frustratingly difficult to get, whether because our Cuban counterparts are burdened by other, more pressing needs, or because of the difficulty of answering our questions given the continuing tense relations between the U.S. and Cuban governments. It is one thing to answer a question in person, but may be quite another to respond in writing.

tillable land.²² In contrast to other, less centrally planned economies, state control of property appears to have made this less of a problem in Cuba than elsewhere. Also, as described below, new forms of cooperative ownership, including the grant of indefinite usufructory rights to land, introduced since the beginning of the Special Period, indicate a determined governmental effort to insure land access if not actual ownership.²³

Second, urban agriculture, as a regular, desired feature of urban life receiving active government support, remains a relatively new phenomenon.²⁴ As one South American commentator observed, much has been said about how urban agriculture will improve nutrition with relatively little investment, but "there exists very little well-founded information on the scope and limitations of this proposal."²⁵

Third, planned incorporation of agriculture into Cuban land-use efforts runs the risk of becoming the province of the more privileged members of Cuban society.²⁶ For a country currently accustomed to less inequality than in most parts of the world, an alarming feature of the post-Soviet Cuban landscape is the appearance of privileged and

22. See IDRC, *supra* note 7, at 111. On the phenomenon in Cuba, and particularly the struggles over questions of land tenure, see LAURA J. ENRÍQUEZ, CUBA'S NEW AGRICULTURAL REVOLUTION: THE TRANSFORMATION OF FOOD CROP PRODUCTION IN CONTEMPORARY CUBA 7-11 (2000); Deere et al., *supra* note 5, at 211-14. See also José A. Perdomo Concepción, *El precio de negociación del suelo en el ámbito urbano*, 1 PLANIFICACIÓN FÍSICA CUBA 51-55 (2001) ("Actually new considerations, fundamentally economic in nature, have made renewed interest . . . associated with the assessment of the price of land in a general sense." [*Actualmente nuevas consideraciones, fundamentalmente de naturaleza económica, han hecho renacer el interés . . . a la formación de un precio del suelo en sentido general.*]) (copy on file with author). The history of Cuba is, to a great extent, as both colony and self-governing republic, one about control over the land. This was noted, for example, as far back as 1951 by the World Bank. FRANCIS ADAMS TRUSLOW, INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT, REPORT ON CUBA: FINDINGS AND RECOMMENDATIONS OF AN ECONOMIC AND TECHNICAL MISSION 91-94 (1951).

23. See *infra* notes 67, 82 and accompanying text.

24. Of course, urban agriculture is as ancient a phenomenon in modern-day Latin America as elsewhere. UNDP, *supra* note 7, at 41-44. The new aspect to which I refer here is the integration of urban agriculture into modern land-use planning.

25. "Existe muy poca información fundada sobre los alcances y limitaciones de esta propuesta." Pablo & Graciela Gutman, *Agricultura Urbana y Periurbana en el Gran Buenos Aires: Experiencias y perspectivas*, INFORMES DE INVESTIGACIÓN DEL CENTRO DE ESTUDIOS URBANOS Y REGIONALES 11 (1986) [hereinafter CEUR REPORT]. Although written in 1986, the observation remains relevant, as evidenced by the concerns with irrigation that must constitute a central part—and headache—for any well-developed urban agriculture plan. See, e.g., UNDP, *supra* note 7, at 215-16. Cuban urban farmers are well aware of this. Reinaldo Cun González & Ramón Pérez Leira, *Técnicas de captación de agua lluvia para el riego en la agricultura urbana*, 8 AGRICULTURA ORGÁNICA 4 (2002).

26. See, e.g., IDRC, *supra* note 7, at 39-46 (discussing how in Tanzania participants believed that urban agriculture most benefited the better educated and those with good government jobs).

underprivileged classes. Farmers, for example, are among those most benefited by Cuba's switch from a highly centralized, command-and-control economy, to a more mixed, incentive-based, decentralized form of economic life.²⁷ Another class of persons benefiting disproportionately from the increasing complexity of Cuban economic life, and in particularly the shift to economic dollarization, are those involved in tourism.²⁸ To the extent that urban agriculture exists to serve tourist demands for varied and fresh produce,²⁹ those involved in urban agriculture could be seen as members of a privileged class. If the aim of supporting urban agriculture is to support goals of national food self-sufficiency and health of the entire population, such anti-egalitarian trends could, in the long-term, adversely affect popular perceptions of the phenomenon and its desirability.

The fourth respect in which Cuban urban agriculture resembles that of similar efforts elsewhere in the world concerns the definition of urban organic agriculture. What constitutes agricultural activity within an urban area varies widely by country and even locale.³⁰ Rooftop gardens may qualify, as may farms of hundreds of hectares in suburban or peri-urban areas. In Cuba, "urban" agriculture includes activity in the central city, often on small, abandoned lots, as well as more substantial areas in the periphery of the major cities.³¹

The definition as to what constitutes "organic" urban agriculture also varies widely. In the United States, for example, a recently issued, and extremely detailed U.S. Food and Drug Administration (FDA) rule, established a universal standard for "organic" agriculture, setting specific requirements for land management³² and crop nutrition.³³ Products

27. See, e.g., MURPHY, *supra* note 2, Executive Summary ("Deregulation of prices combined with high demand for fresh produce in the cities has allowed urban farmers to make two to three times as much as professionals."); SINCLAIR & THOMPSON, *supra* note 3, at 25 ("Most urban [agriculture] producers come from families who average a 250-peso-per-month salary per member. The average state salary is 206 pesos a month.").

28. See, e.g., Roula el-Raifi, *Teaching Mixed-Market Economics in Havana*, IDRC [INTERNATIONAL DEVELOPMENT RESEARCH CENTRE] REPORTS (1996), available at <http://www.idrc.ca/books/reports/1996/24-01e.html>; Daniel Schweimler, *Sugar and Tourism Force a Bitter Pill on Cubans*, FIN. TIMES, July 9, 2002, at 10.

29. María Caridad Cruz Hernández, *La agricultura urbana en la Habana: evaluación de una experiencia*, in AGRICULTURA URBANA EN AMÉRICA LATINA: MEMORIA 204 (1997).

30. Confusion and variety in the definitions of what constitutes an "urban" as opposed to a "suburban" or "peri-urban" area are discussed at IDRC, *supra* note 7, at x-xi, 1.

31. See SINCLAIR & THOMPSON, *supra* note 3, at 23-24 (noting that Cuban urban agriculture is both diverse and, to a great extent, "quite modest"); Chaplowe, *supra* note 6, at 61-62.

32. 7 C.F.R. § 205.202 (2002). The full regulation appears at 7 C.F.R. §§ 205.1—205.699 and was promulgated pursuant to the Organic Foods Production Act of 1990, 7 U.S.C. §§ 6501-6522 (2002).

grown under 100% organic conditions can bear a special seal, whereas products grown under less than 100% organic conditions may only be labeled "organic."³⁴ However, many small farmers who have practiced a form of organic farming for longer than the practices now attracting the attention of large agribusiness concerns, appear unable or unwilling to comply with the FDA's definitional requirements.³⁵ Similarly, urban "organic" agriculture in Cuba appears almost certainly unable to satisfy the FDA's exacting definition, especially since many of the soils put into "organic" cultivation were unimproved and in many cases had been trash dump sites prior to being put into agricultural service in the Special Period.³⁶

Nevertheless, it is possible to make some general definitional observations as to what "urban organic agriculture" means in Cuba.³⁷ First, "urban" refers to the cultivation of any agricultural product within a city's municipal boundaries or its officially designated periphery.³⁸ In the case of the City of Havana, this means a series of three concentric rings that drive municipal planning: a central ring consisting of "the old core city," a second ring "away from the harbor and the sea," and a "third and largest zone, which contains the aquifer supporting the city and the province," and in which, importantly for urban agriculture, "there will be no new development" in order "to repopulate the core and to stop the sprawl."³⁹

At a minimum, organic in Cuban agriculture refers to the absence of the use of chemical fertilizers, pesticides, and herbicides, but not to any requirement that the soils in which those crops are grown satisfy defined criteria and without specification as to the water source.⁴⁰ Thus,

33. 7 C.F.R. § 205.203.

34. *See id.* §§ 205.303(a)(4), 205.305.

35. Samuel Fromartz, *Small Organic Farmers Pull Up Stakes*, N.Y. TIMES, Oct. 14, 2002, at A21. Indeed, the rule had barely been issued before the controversy over its detailed requirements began. *See, e.g.*, Randy Fabi, *USDA Ushers in New Organic Food Labels* (Oct. 22, 2002), at <http://www.rense.com/general31/sdso.htm>.

36. Hernández, *supra* note 29, at 200; SINCLAIR & THOMPSON, *supra* note 3, at 26 (noting the low organic content of much Cuban soil is a result of "heavy abuse under the previous highly mechanized chemical intensive production system"); Hernández, *supra* note 29, at 200.

37. *See* Oliver A. Houck, *Thinking About Tomorrow: Cuba's "Alternative Model" for Sustainable Development*, 16 TUL. ENVTL. L.J. 521, 526 (2003).

38. *See id.*

39. *See id.* at 526-27.

40. Although efforts to obtain details about water use for urban agriculture were unsuccessful by the publication deadline for this Article, it is unquestionably true that concerns about water sources for urban agriculture are among the most serious impediment to its long-term, safe implementation. This was attested to by officials with whom I spoke from both the Ministry of Agriculture and Department of Physical Planning for the City of Havana. The poor state of Cuba's water management regimes, however, is well-established. *See, e.g.*, DÍAZ-

in the following sections, “urban organic agriculture” refers to the cultivation and production of agricultural products, including edible, medicinal, and decorative plants, grown without the assistance of chemical agents, and within the outside limit of the official peripheral borders of Cuban municipalities.

B. Cuban Urban Agriculture and Land-Use Planning

1. Post-Revolutionary Period

Cuba’s concern with food self-sufficiency and security is not a recent development. Part of the “triumph of the revolution,” to use the stock Cuban rhetorical phrase, was a recognition of the pernicious consequences of a sugar-focused agricultural policy.⁴¹ Early agricultural planning efforts attempted to diversify the agricultural base, as a recognition that this would help combat malnutrition (an endemic problem prior to the Revolution), maximize soil use, and help enrich fertile soils.⁴² Notably, in the immediate post-revolutionary period, the Cuban government recorded some successes in this regard.⁴³ To this end, as far back as the immediate post-revolutionary period, there was an effort to create a “*Cordón de la Habana*,” a ring around the capital that would incorporate intensive agricultural use into the land-use planning process.⁴⁴ But the need for foreign exchange and the desire of Cubans for a variety of products that could neither be grown nor manufactured on the island interfered with these efforts. In short order, communist Cuba restored the sugar monoculture imposed on it by its Spanish and U.S. colonizers, and, in the process, satisfied the demand of its Soviet patrons.⁴⁵

In order to appreciate the potential of Cuban urban agriculture, it is worth recalling this history. However, it needs to be remembered that the

BRIQUETS & PÉREZ-LÓPEZ, *supra* note 11, at 122-23. The World Health Organization (WHO) ranks contaminated water as one of the ten greatest health risks worldwide. See Emma Ross, *WHO Ranks Top Health Hazards* (Oct. 30, 2002), available at <http://www.aegis.com/news/ap/2002/AP020130.html>. This is not a recent realization, of course. See, e.g., U.N. FOOD & AGRIC. ORG., GUIDELINES FOR DEVELOPING AN EFFECTIVE NATIONAL FOOD CONTROL SYSTEM 3 (1976) [hereinafter FAO].

41. See Chaplowe, *supra* note 6, at 29 (quoting TRUSLOW, *supra* note 22, at 442-43, to the effect that, prior to the Revolution, malnutrition rates in Cuba ranged from 40%-60%).

42. See *id.*

43. See *id.* at 30 (noting that, for instance, during the 1959-1963 period, consumption of various commodities increased, including a 50% increase in beef consumption in just two years).

44. See Hernández, *supra* note 29, at 199.

45. As Chaplowe observes, Cuba’s longtime dependence on foreign products was hard to break, whether these products came from the United States or other foreign sources. Chaplowe, *supra* note 6, at 37.

Cuban government remained aware of the problems imposed by its return to an agricultural policy that so closely resembled pre-revolutionary practices. Indeed, even before the reforms of the Special Period, in 1985, the government initiated its *Programa Alimentario* (Nutritional Program) in an effort to diversify agriculture.⁴⁶ By 1987, the national government organized its first *organopónicos*, which are gardens built in raised beds located over poor or infertile soils.⁴⁷ In 1989, the government launched a national food program "both [as] a response to the demise of COMECON [Council For Mutual Economic Assistance] and an outcome of the broader process of 'rectification of errors' in the management of the Cuban economy which began in 1986."⁴⁸ That is, even before the crisis of the 1990s, Cuban authorities knew that their agricultural policy demanded diversification and a change from prevailing practices. Moreover, Cuba's highly centralized research and development system may make it better equipped to implement such changes in direction than in many other resource-poor developing countries.⁴⁹

2. The Special Period

Without question, the thing that, to return to the metaphor with which I began, made the Cuban urban agricultural frog jump was the commencement of the Special Period. In the immediate wake of the Soviet Union's collapse and the resulting loss of Soviet subsidies and a ready market for Cuban products, the country had at least 2000 hectares of undeveloped land that would otherwise sit vacant if not put into agricultural service. In the city centers, local governments developed an interest in abandoned lots full of trash and weeds.⁵⁰ These lots suddenly became unavailable for the construction of residences, recreation centers, or commercial centers due to a severe shortage of construction materials.

46. SINCLAIR & THOMPSON, *supra* note 3, at 18; Carmen Diana Deere, *Cuba's National Food Program and Its Prospects for Food Security*, 10 AGRIC. & HUM. VALUES 35, 37-39 (1991).

47. The first *organopónicos* were promoted by the government in 1987, before the commencement of the Special Period. MURPHY, *supra* note 2, at 19.

48. Deere, *supra* note 9, at 63; *see also* MURPHY, *supra* note 2, at 7; Carmen Diana Deere, *The New Agrarian Reforms*, 29 NACLA REP. ON AMS. No. 2 (Sept./Oct. 1995); Niurka Pérez & Dayma Echevarría, *Case Studies: The Mixed Experiences of Two New Cooperatives*, in SUSTAINABLE AGRICULTURE AND RESISTANCE, *supra* note 3, at 264.

49. *See, e.g.*, SINCLAIR & THOMPSON, *supra* note 3, at 25-26 (discussing the role of state institutes in the use of pest and biological controls). The role of centralized Cuban research and development can be seen in SUSTAINABLE AGRICULTURE AND RESISTANCE, *supra* note 3.

50. Hernández, *supra* note 29, at 200.

Not surprisingly, the early appearance of urban organic agriculture in Cuba was disorganized in both scale and type.⁵¹ Everything from roadside gardens to extensive farms in the semi-rural urban periphery was classified under the “urban agriculture” rubric—a classification that continues to this day.⁵² But in 1994, the Ministry of Agriculture stepped in to regulate the process, creating an Urban Agriculture Department within the Ministry to oversee urban organic agriculture.⁵³ This formal step was given a further boost in 1997, with the adoption of Resolution No. 527/97, by which “urban dwellers can receive up to one-third of an acre for a personal lot in the periphery of the major cities.”⁵⁴

These changes on urban land use were, and remain, striking. For instance, some participants at the conference that generated this Article visited a small, family farm on the periphery of Havana that, prior to the Special Period, was slated to be the site of a new biotechnology research center. However, the loss of foreign exchange and imports brought the planning for the biotechnology center to a halt, and the land was dedicated to agricultural use. This example is typical of the land-use changes wrought by Cuban urban organic agriculture since the commencement of the Special Period.⁵⁵ Yet it also appears to be true that, in spite of these developments, urban organic agriculture is not yet fully integrated into the traditional urban-planning process in Cuba.⁵⁶ Because of this, urban organic agriculture in Cuba confronts many of the same obstacles as urban agriculture elsewhere in the world. Before examining the ways in which Cuba may more formally incorporate urban agriculture into its planning process, it is worth highlighting some of the benefits, and some of the possible pitfalls, of urban agriculture, especially as they affect land-use and environmental planning.

3. Agriculture in Urban Settings: The Advantages

The appeal of urban agriculture is the same in Cuba as in much of the rest of the world. Where many people in the United States or Western Europe may grow backyard vegetables as part of a leisure

51. Interview with Eduardo Martínez Oliva, Asociación Cubana de Técnicos Agrícolas y Forestales, in Havana, Cuba (Aug. 15, 2002); *see also* Hernández, *supra* note 29, at 200.

52. *See* SINCLAIR & THOMPSON, *supra* note 3, at 23.

53. *See id.*; MURPHY, *supra* note 2, at 12-13.

54. SINCLAIR & THOMPSON, *supra* note 3, at 23.

55. Another of the farms our group visited on August 13, 2002, had formerly been the site of a hospital and was said to have been the future site of an extensive “sports city.”

56. Hernández, *supra* note 29, at 200.

interest in gardening,⁵⁷ Cuban urban agriculture fills an overwhelming need for food,⁵⁸ providing individuals with the fruits and vegetables necessary for a healthy diet.⁵⁹ Not only is food consumed closer to the source of production more nutritional, but this method of production and distribution tends to result in a greater variety of available foodstuffs since producers can grow more perishable products.⁶⁰ Furthermore, Cuban urban agriculture, because of the dangers of heavy chemical application in densely settled areas, is organic largely out of necessity and, therefore, has the advantage of reducing chemical exposure.⁶¹

57. To be sure, these and related reasons, such as exercise, love of farming, and self-improvement may be true in Cuba as well. On one of our group's August 13, 2002, farm tours, we met a middle-aged farmer, a former Ministry official, who exulted in his weight loss since being transferred to an urban farm from his Ministry desk. See MURPHY, *supra* note 2, at 41-44; cf. FREEMAN, *supra* note 7, at 109. But it is also clearly true that, for the time being, urban agriculture in Cuba principally serves a more fundamental end.

58. See Companioni et al., *supra* note 7, at 227; see also Highlights of Radio Rebelde News 1100 GMT, Feb. 9, 2001, available at Westlaw, LATNEWS Database, BBCWM File, 2001 WL 12699373 (maintaining that of Cuban agricultural production in 2000, 54.5% was due to urban agriculture). This is a common feature of urban agriculture. See FREEMAN, *supra* note 7, at 105.

59. See SINCLAIR & THOMPSON, *supra* note 3, at 52 (providing charts that show increases in basic food production from 1994 to 1999); Highlights of Cubavision TV News 0000 GMT, Sept. 8, 2001, available at Westlaw, LATNEWS Database, BBCWM File, 2001 WL 27285077 ("The national urban agriculture programme allows for the per capita consumption of vegetables in Cuba to be well above the amount established by the UN Food and Agriculture Organization. To date this year, more than 1m metric tonnes of vegetables and herbs and spices have been produced throughout Cuba."); Highlights of Cubavision Tele Rebelde News 0000 GMT, June 23, 2001, available at Westlaw, LATNEWS Database, BBCWM File, 2001 WL 24243751 ("During the first trimester of 2001, Havana Province obtained the best results nationally for the urban agriculture programme. . . . Production has allowed the consumption of vegetables to exceed the 300 grams per person established by the UN Food and Agriculture Organization."). The situation in Cuba was especially dire during the Special Period: "[d]aily per-capita caloric intake fell from 2908 in 1989, to 1863 calories in 1995, according to the U.S.D.A., and protein intake dropped by 40%. Some estimated that the average Cuban lost twenty pounds by 1994." SINCLAIR & THOMPSON, *supra* note 3, at 10. As Sinclair & Thompson note elsewhere, however, "[w]ithout including figures for the small gardens and individual farms, urban agriculture alone provided 215 grams of vegetables per day per person throughout Cuba, more than 70% of the grams recommended by the [United Nations Food and Agriculture Organization]." *Id.* at 24; cf. FREEMAN, *supra* note 7, at 106.

60. See, e.g., Companioni et al., *supra* note 7, at 222-23. The illogic of not doing this is a problem worldwide, as an urban agriculture entrepreneur in Boston noted when he observed that "more than 85% of the food consumed in Massachusetts is imported; nearly 60% of that is grown in California," resulting in higher costs due to transportation costs and also making the food less nutritious when consumed. WILLIAM A. SHUTKIN, *THE LAND THAT COULD BE: ENVIRONMENTALISM AND DEMOCRACY IN THE TWENTY-FIRST CENTURY* 156 (2000); see, e.g., SINCLAIR & THOMPSON, *supra* note 3, at 28; Companioni et al., *supra* note 7, at 221-23 (reporting "low quality" of vegetables prior to urban market stands).

61. The WHO recently reaffirmed that chemical contamination is a major source of food-borne illness worldwide. WORLD HEALTH ORG., *FOOD SAFETY AND HEALTH: REPORT BY THE*

Because Cuban urban agriculture features a considerable degree of mandatory provisioning of populations especially vulnerable to chemical contamination, the organic quality of the supply is particularly advantageous from an environmental and human health perspective.⁶² Both of these factors should aid in the long-term popular appeal of urban agriculture in Cuba.

In addition, in Cuba and elsewhere, urban agriculture can supplement cash incomes.⁶³ In the case of persons authorized to grow food on abandoned lots or land they occupy for personal use, urban agriculture can also reduce food costs in home budgets.⁶⁴

Speaking more broadly, urban agriculture contributes to aggregate urban productivity, and in particular furthers urban employment (an especially valuable function in Cuba during the Special Period.)⁶⁵ Urban agriculture also fills vacant niches in the supply of goods and services.⁶⁶ In Cuba's case, where urban agriculture helped diversify not only the types of available food but also the method and cost of its delivery, urban agriculture helps provide access to new goods and services.⁶⁷

Additionally, because it is organic and usually offers a greater mix of fruits and vegetables, urban agriculture increases awareness of the role of nutrition on health and the value of reducing human exposure to chemical and other environmental contaminants.⁶⁸ Moreover, in Cuba, where, prior to the flowering of urban agriculture in the Special Period, people were accustomed to having their food selection dictated to a large

SECRETARIAT, EBT 109/13 (Dec. 6, 2001), *available at* <http://www.who.int/en/>. This was not well-established as recently as twenty-five years ago. *See* FAO, *supra* note 40, at 3-4.

62. The mandatory provisioning is discussed in ENRÍQUEZ, *supra* note 22, at 5-11.

63. FREEMAN, *supra* note 7, at 106. In Cuba, "a new practice of tying an individual's salary to his or her productivity may be one of the most vital, yet unheralded, reforms." SINCLAIR & THOMPSON, *supra* note 3, at 21.

64. *See* FREEMAN, *supra* note 7, at 108-09; WADE, *supra* note 7, at 3. This has also been noted as a desirable consequence of Cuban urban agriculture. *See, e.g.*, Companioni et al., *supra* note 7, at 223.

65. *See* FREEMAN, *supra* note 7, at 111-12. As for Cuba, "[p]roductivity levels, though improved over the past five years [since 1995], still are woefully inadequate." SINCLAIR & THOMPSON, *supra* note 3, at 33-34; *see, e.g.*, Highlights of Radio Rebelde News 1700 GMT, Apr. 25, 2001, *available at* Westlaw, LATNEWS Database, BBCWM File, 2001 WL 20341186.

66. *See, e.g.*, Chaplowe, *supra* note 6, at 72-73.

67. For example, "the emergence of new social agents in agriculture: cooperatives on state lands, *campesinos* with lands in usufruct (individuals and family groups), and workers in joint venture enterprises." Lucy Martín, *Transforming the Cuban Countryside: Property, Markets, and Technological Change*, in SUSTAINABLE AGRICULTURE AND RESISTANCE, *supra* note 3, at 69. Interestingly for a U.S. citizen, organic produce sold at market-stands is about 50% less expensive in Cuba than produce sold at state-run agricultural markets, an inversion of the typical U.S. experience, where higher price is viewed as a cost paid for taste and presumed quality. *See* SINCLAIR & THOMPSON, *supra* note 3, at 28.

68. *See, e.g.*, Hernández, *supra* note 29, at 202.

extent by ration books, the variety of urban agricultural products carries the advantage of giving individuals greater control over their diet through crop selection.⁶⁹ This development surely breeds better informed food consumers and, in the long run, a healthier population.

Furthermore, the Cuban experience with urban agriculture mimics the tendency of urban agriculture generally to promote individual enterprise.⁷⁰ Of course, given its post-revolutionary history as a centralized state, the degree to which private enterprise is permitted as an avenue by which people can improve themselves materially remains to be seen. Although, as noted above, farmers are especially privileged members of the diversifying, post-Special Period Cuban economy, it is also true that urban farmers are directed by the state to dedicate a significant portion of their crop to special uses like schools and hospitals.⁷¹ Despite state control, farmers may earn a small profit in, for example, the operation of roadside stands.⁷² At the risk of imposing U.S. capitalist notions of why people work on the Cuban model,⁷³ it nonetheless seems fair to suggest that the expansion of such incentives could further solidify urban agriculture's place on the Cuban economic and social landscape.

In many countries, urban agriculture is also a point of workplace entry for women.⁷⁴ Although this is perhaps more characteristic of other countries than of post-revolutionary Cuba, where the role of women in

69. Chaplowe, *supra* note 6, at 65.

70. See IDRRC, *supra* note 7, at xiv.

71. See MURPHY, *supra* note 2, at 17-18.

72. See *id.* at 18.

73. As noted in the CEUR REPORT, *supra* note 25, at 207 n.1, "self-reliant" is a difficult term to translate from English into Spanish:

We are conscious that there exists no satisfactory translation into Spanish of the term "self-reliant". The expression in English refers to nonmaterial aspects; self-confidence, self-initiative, but also physical aspects, "based on your own strength," "helped by your own abilities", etc. In some cases, self-reliant has been translated as self-sufficiency. But its advocates reject the sense of independence or isolation [this term] has. [*Somos concientes que no existe una traducción al español del término "self-reliant" que resulte satisfactoria. La expresión en inglés se refiere a aspectos no materiales; autoconfianza, autoiniciativa, pero también físicos, "basado en el esfuerzo propio", "apoyada en las propias capacidades", etc. En algunos casos se ha traducido self-reliant como autosuficiente. Pero sus promotores rechazan el sentido de autarquía o aislamiento que tiene.*]

Id.

74. FREEMAN, *supra* note 7, at 16-17.

the workplace is already well established, it seems that, to some extent, this is also true in the Cuban example.⁷⁵

Perhaps most importantly from a land-use planning perspective, urban agriculture adds value to neglected areas or urban wastelands, thereby helping to revive the cityscape. This is certainly happening in Cuba.⁷⁶ By the late 1990s, there was at least one urban organic produce market in every major municipality, all direct outgrowths of nearby urban farming operations.⁷⁷ For both environmental and land-use planners, the location of agricultural operations in urban areas has a beneficial, if not wholly anticipated, consequence. Specifically, the use of organic fertilizers—compost and mulch created by decomposed organic material diverted from the waste stream—creates a precious and overlooked resource that simultaneously reduces the volume of the waste stream requiring treatment, storage, and disposal and pours that bounty into improving urban soils.⁷⁸

From a legal and land-use planning perspective, the challenge, of course, is how to turn exigencies into practices that are deemed desirable in the long term. In fact, because of Cuba's centrally planned economy, it

75. According to the state media, in 2001, of the five million persons in the workforce, 43% were women. Highlights of Cubavision TV News 0000 GMT, Aug. 30, 2001, *available at* Westlaw, LATNEWS Database, BBCWM File, 2001 WL 26973798. In Cuba,

the participation of women in urban agriculture is much greater than the role women have traditionally played in rural agriculture. . . . Unlike most countries where women grow the bulk of all food, in the Cuban countryside agricultural labor is considered a man's job. This view is changing in the cities with the development of urban agriculture. The largest *organopónico* in the country, called *Las Marianas*, is organized by the Federation of Cuban Women and employs 140 women. Many women have full time salaried jobs in urban gardens, and many retired women tend gardens in their spare time.

See MURPHY, *supra* note 2, at 16-17 (citation omitted).

76. Scott Chaplowe, *Havana's Popular Gardens: Sustainable Urban Agriculture*, CITY FARMER URBAN AGRICULTURE NOTES (1998), *available at* <http://www.cityfarmer.org/cuba.html>.

77. Chaplowe, *supra* note 6, at 48.

78. Hernández, *supra* note 29, at 201, notes:

The production of organic fertilizer beginning with domestic waste, tree trimmings and other rubbish, constitutes a precious resource for improving soils. Exploiting the high potential that the city offers results in a positive benefit as much in the production of food as in the reduction of its share of urban contamination. [*La producción de abono orgánico a partir de los residuos domésticos, poda y otros desechos, constituyen una fuente inapreciable para mejorar los suelos. Explotar el alto potencial que brinda la ciudad redundará positivamente tanto en la producción de alimentos como en la dismunición de la carga contaminante de la urbe.*].

See also Pedro Juan de Rosario, *Alternativas populares frente al problema de la basura: propuestas para la Ciudad de Santiago de los Caballeros*, in *AGRICULTURA URBANA EN AMÉRICA LATINA: MEMORIA 111*, 127-30 (1997) (providing a description of a trash-to-soil recycling effort in a Dominican city).

may be easier to do this in Cuba than elsewhere. By contrast to many other Latin American countries that have endured their share of agricultural turmoil in the past decade, the centralized authority of the Cuban state may help entrench urban agriculture as a fixture of Cuban life, provided there is continued political will to do so.⁷⁹ For example, in many parts of the world urban agriculture is a workplace entry point for both women and rural laborers who have migrated to the cities. By contrast, in Cuba not only the demographic profile is rather different, not only including previously underemployed women, but also highly skilled urban technical workers who have been “recycled” to farm labor.⁸⁰ Such people, of course, bring with them their technical skills which, when coupled with years of agricultural work, may produce a new breed of farmer—one both sophisticated in the needs of modern business and markets, and also in the ways of farming. In this, paradoxically, the urban organic agriculturalists produced by the Special Period curiously parallel a similar breed in the United States, namely well-educated professionals and dissenters from the prevailing agribusiness orthodoxy.⁸¹ Moreover, to the extent that the Cuban government continues to give

79. SINCLAIR & THOMPSON, *supra* note 3, at 39 (discussing the fact that the economic dislocation caused by free market reforms in much of Latin America was not as disruptive for Cuban farmers as it was elsewhere); *see also* JORGE MÁTTAR, *Foreign Investment in Mexico After Economic Reform*, U.N. COMISIÓN ECONÓMICA PARA AMÉRICA LATINA Y EL CARIBE (CEPAL): SERIE ESTUDIOS Y PERSPECTIVAS No. 10 (July 2002) (examining the effects of trade liberalization on capital formation in Mexico); Adriana de Aguinaga, *The New Agrarian Law—Mexico’s Way Out*, 24 ST. MARY’S L.J. 883, 888, 900-01 (1993) (criticizing Mexican land reforms and examining the potential impact of the North American Free Trade Agreement). *See generally* Steven E. Hendrix, *Property Law Innovations in Latin America with Recommendations*, 18 B.C. INT’L & COMP. L. REV. 1 (1995) (comparing the case of four countries, Mexico, Nicaragua, Honduras, and Peru, and suggesting commonalities and appropriate reforms); James K. Kelly, Jr., Note, *Article 27 and Mexican Land Reform: The Legacy of Zapata’s Dream*, 25 COLUM. HUM. RTS. L. REV. 541, (1994) (analyzing Mexican land reforms and evaluating their prospects for the future).

Given the likely end of the U.S. trade embargo against Cuba, *see infra* note 184 and accompanying text, Cuban concerns about trade with the United States need to be kept in context. Many of the agricultural and economic reforms in Latin America of the 1960s through the 1980s, were part of a Cold War effort that was directed at, among other targets, the dismantling of the communist Cuban government, as illustrated in a history of the Latin American Agribusiness Development Corporation, written by its former President. ROBERT L. ROSS, *MISSION POSSIBLE: THE STORY OF THE LATIN AMERICAN AGRIBUSINESS DEVELOPMENT CORPORATION (LADD)* 9, 32-33, 56 (2000) (noting that Cuba remained the chief concern of U.S. foreign aid policy in this hemisphere).

80. *See* Chaplowe, *supra* note 6, at 68; *supra* notes 19, 75 and accompanying text.

81. Celebrated examples of the American types to which I refer are Wendell Berry and Wes Jackson. *See, e.g.*, WENDELL BERRY, *THE GIFT OF GOOD LAND: FURTHER ESSAYS, CULTURAL & AGRICULTURAL* (1983). Examples of such individuals outside of the industrialized “Western” nations are more common, but a prominent example would be Vandana Shiva. *See* sources cited *supra* note 10.

urban farmers usufructory rights and production incentives to farm particular land, urban farmers in Cuba are not bound by the same land-use and property concerns and limitations facing both their United States and other developing country counterparts.⁸²

4. Agriculture in Urban Settings: The Perils

Despite the many benefits to urban agriculture, there is good reason to believe that urban agriculture will not root firmly in Cuban soil. Cultural, environmental, and technical concerns raise doubts about the long-term place for urban agriculture in Cuba's agricultural and land-use policies.⁸³

Cultural perceptions of the desirability of urban agriculture vary by country and region, of course, and in every case cultural attitudes are an essential influence on urban agriculture's success. Nonetheless, available studies of a wide range of urban agricultural practices suggest that the Cuban example shares much in common with other nations.⁸⁴ A major challenge faced in most urban agricultural settings, for instance, is the need to convince the citizenry that the practice is both desirable and viable.⁸⁵ This appears to be true even in developing countries, like Cuba, that face serious food self-sufficiency challenges. As a general rule, former colonies tend to follow the forms of urban organization developed by their colonial masters. Nineteenth-century European colonizers viewed urban agricultural practice as either primitive or as a sign of impoverishment. They appeared to have passed on this perception to the current residents of non-Andean Latin American nations. As one commentator observed about Buenos Aires, Argentina, which, like Havana, is an urban Latin American capital bearing the strong imprint of its colonial heritage: "[b]ut if the colonial city reserved space for the suburban garden, the culture of the Spanish colony never considered it either a dignified activity for the proprietor of urban land or a productive activity."⁸⁶

82. See FREEMAN, *supra* note 7, at 71-78 (noting problematic aspects of ownership under Kenyan law, both as a matter of Anglo-inspired legal rights and traditional land tenure arrangements); SHUTKIN, *supra* note 60, at 162.

83. See MURPHY, *supra* note 2, at 38-42.

84. See, e.g., FREEMAN, *supra* note 7, at 106 (discussing urban Kenya's experience with urban agriculture).

85. See, e.g., UNDP, *supra* note 7, at 198.

86. CEUR REPORT, *supra* note 25, at 133 ("*Pero si la ciudad colonial reservó el espacio para la huerta suburbana, la cultura de la colonia española nunca la consideró una actividad digna del propietario urbano, ni como actividad rentable.*"); cf. SINCLAIR & THOMPSON, *supra* note 3, at 24 ("Though some have disparaged urban agriculture, seen as running counter to modernization and urban progress, in truth, urban agriculture has had an extraordinarily high social impact.").

A disdain for agriculture generally appears to constitute a feature of modern Cuban society because "for many it was associated with undignified rural labor, reminiscent of the repression, slavery, and colonialism of Cuba's not so distant past."⁸⁷ Moreover, at the commencement of the Special Period, many residents of Havana were "inexperienced with gardening and agriculture."⁸⁸ Thus, in order to establish Cuban urban agriculture's place as something more than a practice required by exigent circumstances, some effort is required to change deeply held, negative perceptions of the practice. Some foreign observers suggest that this has been happening, as Cubans celebrate their urban agriculture successes and move to make the practice a permanent fixture of national life.⁸⁹

Nonetheless, changing Cuban perceptions about agricultural activity may be especially problematic. The Cuban experience with diversified agriculture has been limited, and experience with nonsugar crops has been even more limited.⁹⁰ Thus, the difficulty in making urban agriculture permanent in Cuba is more than merely making it seem worthwhile; it is a matter of educating the population as to the variety of opportunities urban agriculture can offer. These include growing a wide variety of tree and ground crops, specialized production of medicinal and ornamental plants, as well as all manner of secondary activities, such as the production of prepared and packaged foods using local ingredients.⁹¹ Again, although such education appears to be happening in Cuba, the needed change in attitudes required for its long-range implementation nonetheless represents a daunting challenge. Urban dwellers, whether in Havana, Houston, or Harare, are not accustomed to seeing farming operations in urban centers. Their appearance may be viewed as a kind of blight. Beet and carrot tops or corn stalks viewed from the urban street may be read as visual signals of poverty and desperation rather than communicating an idea about sustainable nutrition.⁹²

87. Chaplowe, *supra* note 6, at 58, 60.

88. *Id.*

89. *See, e.g.*, Companioni et al., *supra* note 7, at 227-35.

90. *See* CHAPLOWE, *supra* note 6, at 27 (noting that sugar cane dominated the landscape, accounting for 42% of the value of all agricultural production during the 1950s). Lack of diversification has a long history in Cuba. TRUSLOW, *supra* note 22, at 94-96.

91. *See* MURPHY, *supra* note 2, at 35-38.

92. Consider, for example, the concerns about urban gardens: "It will be possible to construct, as we have anticipated and estimated to be useful one organic garden or more per Popular Council zone, . . . but the aesthetic effects upon the urban landscape can be disastrous . . . and the results will not be satisfactory if not constructed and prepared as technically foreseen." [*"Se podrá construir, como hemos previsto y estimamos provechoso, un organopónico o más por zona de Consejo Popular, . . . pero los efectos sobre el paisaje urbano pueden ser desastrosos*

Environmental concerns can present equally difficult, if not more tangible, problems. At their center, the environmental concerns associated with city and suburban farming present a paradox: urban farming is desirable because it provides people with fresher, and therefore healthier, food, but the closeness of people living in densely populated urban environments to the site of food production endangers the very quality of that food.⁹³ Consequently, the proponents of urban agriculture face serious challenges in insuring an urban environment clean enough to sustain production of nutritious and uncontaminated food. The assaults facing their cultivation efforts come from every medium. The health security of an urban population dependent to any significant degree on locally grown produce is at risk of contamination from dirty air,⁹⁴ land,⁹⁵ and water.⁹⁶ At the very least, such contamination threatens any designation of locally grown food in urban areas as "organic." At the most, it threatens the integrity of a healthy food supply.

In Cuba, a primary motive for relocating food production was to reduce transportation costs incurred in bringing food to cities, particularly Havana, from the countryside since the loss of Soviet support resulted in severe fuel shortages.⁹⁷ Paradoxically, this means that food is now being produced in the more polluted air of a major metropolis, necessarily raising concern about the quality of food produced in that environment. In addition, it bears noting that the risk of air pollution of Cuban urban produce may be compounded by the presence of airborne lead, since, as in much of the developing world, Cuba has yet to phase out leaded gasoline.⁹⁸ For this reason, despite the relative lack of vehicular

como se aprecia ya en algunos casos, y los resultados no serán satisfactorios si no construyen y preparan como técnicamente está previsto."]; Hernández, supra note 29, at 202. This being said, it also appears that "Cubans now view farming as an occupation very differently than they did in the 1980s. Thousands of families have left the cities and towns to claim a farming stake and make their livelihood from the land." SINCLAIR & THOMPSON, supra note 3, at 22 (referring not to urban agriculture, but to out-migration from urban to rural areas).

93. See UNDP, *supra* note 7, at 199.

94. See *id.* at 9. Predictably, air contamination is particularly a concern in areas inside city limits. See SHUTKIN, *supra* note 60, at 69.

95. See UNDP, *supra* note 7, at 205-07.

96. See DÍAZ-BRIQUETS & PÉREZ-LÓPEZ, *supra* note 11, at 122-23. On the risks of urban agriculture generally, see Anthony J. McMichael, *The Urban Environment and Health in a World of Increasing Globalization: Issues for Developing Countries*, 78 BULL. OF THE WORLD HEALTH ORG. 1117, 1121 (2000).

97. See, e.g., MURPHY, *supra* note 2, Executive Summary; Deere, *supra* note 9, at 57-59. This effort appears to have been successful. Hernández, *supra* note 29, at 202.

98. Many counties have phased out leaded gasoline. See Global Lead Network, at <http://www.globalleadnet.org/countries.cfm> (last visited Apr. 14, 2003); see also The World Bank Group, *World Bank Recommends Global Phase-Out of Leaded Gasoline*, at <http://www.worldbank.org/html/extdr/extme/gaspr.htm> (last visited Oct. 23, 2002). Cuba's State

traffic in Cuba as compared with much of the world, possible crop contamination from mobile sources may be as great a concern as contamination from large industrial sources.⁹⁹ Cuban vehicles are disproportionately older and thus dirtier and less fuel efficient, as are its power plants.¹⁰⁰ All of these factors raise serious concerns about food production in such an environment.

As with air, the case of contaminated land and urban agriculture is also complicated. On the one hand, Cuban urban agriculture has reduced the quantity of abandoned spaces, which can be breeding grounds for pests and the water-borne diseases to which a wet, tropical country is prone.¹⁰¹ On the other hand, the practice of agriculture in urban areas presents serious challenges to the land-use planner. First, planners need be sensitive to the proximity of polluting urban activities, such as waste transfer stations, smelting operations, or small businesses that use solvents or other frequently toxic materials, like metal-plating shops and dry cleaners.¹⁰² Second, the concerns that drive so many of the discussions over "brownfield" regulation in the United States must be considered by land-use planners often ill-equipped by training (both in Cuba and in the United States) to evaluate the soil and other ambient environmental requirements necessary for effective and healthy agricultural practice.¹⁰³

In particular, as in older U.S. urban neighborhoods, the problem of soil contamination by lead residues from both air deposition and particles of lead-based paint is a serious concern. This is because green, leafy vegetables, among the most beneficial urban crops because they are the most perishable, are also major vectors for transmitting the potentially deadly heavy metal.¹⁰⁴ Not surprisingly, at the inauguration of urban

Council did promulgate an ambitious "dangerous waste" control law resolution in 1994, pursuant to its comprehensive Law No. 81 concerning the environment. The definition of waste included lead and lead byproducts, in addition to regulating other heavy metals and dangerous substances. Resolución No. 87/99, por acuerdo del Consejo de Estado de 21 de abril de 1994, *reprinted in* Ministerio de Ciencia, Tecnología y Medio Ambiente, *Principales resoluciones promulgadas después de la ley 81* (June 2001).

99. See DÍAZ-BRIQUETS & PÉREZ-LÓPEZ, *supra* note 11, at 192-96; WADE, *supra* note 7, at 10-11; Hernández, *supra* note 29, at 201; Houck, *supra* note 37, at 529.

100. See DÍAZ-BRIQUETS & PÉREZ-LÓPEZ, *supra* note 11, at 192-96.

101. Cf. McMichael, *supra* note 96, at 1120-21.

102. See UNDP, *supra* note 7, at 199.

103. In the U.S. context, see, e.g., SHUTKIN, *supra* note 60, at 61-65, 150, 159-60. For an effort to provide direction in brownfield cleanup, see Steven F. Fairlie, *The New Greenfields Legislation: A Practitioner's Guide to Recycling Old Industrial Sites*, 5 DICK. J. ENVTL. L. & POL'Y 77, 78-96 (1996).

104. See UNDP, *supra* note 7, at 199-200.

agriculture efforts in the Special Period, Cuban gardeners expressed concern about this type of lead contamination.¹⁰⁵

Furthermore, environmental concerns often overlap with cultural ones when it comes to perceived land contamination from a possible source of fertilizer, namely treated solid waste. Treated human waste may be incorrectly viewed as a potential cause of soil contamination (and one that may leach into and imperil water supplies).¹⁰⁶ This is regrettable because its use as fertilizer can help reduce the volume of disposable waste.¹⁰⁷ In Cuba, where waste is often discharged directly into the ocean without treatment,¹⁰⁸ this is particularly discouraging.

No environmental issue poses more serious challenges for the stability and integrity of urban agriculture, however, than water pollution.¹⁰⁹ In particular, Cuba's aging sewage systems pose a serious threat to the integrity of urban agricultural practice,¹¹⁰ and may also pose environmental justice concerns.¹¹¹

Bad water quality is, in fact, a perpetual source of concern for the management of healthy, and therefore effective, urban farming.¹¹² Although communities sometimes object to the use of treated wastewater for irrigation, it can be effectively used for food crop irrigation, even when the wastewater is not treated to potable levels.¹¹³ Popular anxiety is

105. See Chaplowe, *supra* note 6, at 73.

106. See UNDP, *supra* note 7, at 200-01.

107. See Hernández, *supra* note 29, at 201.

108. See Oliver A. Houck, *Environmental Law in Cuba*, 16 J. LAND USE & ENVTL. L. 1, 5, 41 (2000).

109. See UNDP, *supra* note 7, at 201-04.

110. See Hernández, *supra* note 29, at 205. A description of successful efforts to reduce water contamination and associated health problems and treat residual water for agricultural use may be found in Julio Moscoso, *El uso de efluentes de lagunas de estabilización en acuicultura y agricultura*, in AGRICULTURA URBANA EN AMERICA LATINA: MEMORIA 89-97 (1997) (treating the subject generally, but focusing on a project in Lima, Peru).

111. In an informal conversation on August 15, 2002, two Cuban Ministry officials confirmed to me that diversion of wastewater for irrigation was a concern with Cuban urban agriculture, especially in poorer urban neighborhoods. This is hardly surprising, given that in a country like the United States, with greater economic resources and an over thirty-year history of clean water regulation, poor water quality, particularly as a result of agriculture, remains a major environmental problem. See, e.g., SHUTKIN, *supra* note 60, at 66.

112. See Pascale Bonnefoy, *Coping with the Water Crisis in Cuba*, IDRC REPORTS (2001), available at http://www.idrc.ca/reports/prn_report.cfm?article_num=1047 (describing a sustainable technology project to install 703 slow-sand filters and containers for filtered water, mostly in Santiago de Cuba).

113. The sustainable (*viz.* low-tech) treatment of wastewater is increasingly recognized as a safe alternative, if implemented with care. See, e.g., GRIETJI ZEEMAN, WORLD HEALTH ORG. REG'L OFFICE FOR THE E. MEDITERRANEAN REG'L CTR. FOR ENVTL. HEALTH ACTIVITIES TECHNICAL EXPERT CONSULTATION ON APPROPRIATE AND INNOVATIVE WASTEWATER MANAGEMENT FOR SMALL COMMUNITIES IN EMR [EASTERN MEDITERRANEAN REGION] COUNTRIES (2000). In the United States, such methods are increasingly recognized as important given water shortages

merited, however, when wastewater for irrigation is not treated to specified levels, as it can lead to cholera and other potentially fatal, bacteria-borne infections.¹¹⁴ The potential consequences of incorrectly managed urban agriculture appear to worry Cuban authorities.¹¹⁵

Technical concerns are also considerable. Even in a resource-rich country like the United States, with better maintained wastewater treatment systems, pollution of waterways by wastewater plants is a serious danger.¹¹⁶ This occurs in Cuba as well and, to the extent that waterways are used to irrigate agriculture (urban or not), contaminated sources threaten to disrupt a healthy food supply.

More practically, the centralization that characterizes most wastewater treatment can make urban agriculture more difficult than it would be in a decentralized system. That is, wastewater is a logical irrigation source for urban farmers, both efficient and, if managed properly, environmentally sound.¹¹⁷ But the dominant type of centralized system common to most parts of the world today, a system of pipes that discharges waste to central treatment plants that, in turn, centrally dispose of the treated wastewater, is technically maladept for serving scattered urban agricultural operations, despite their suitability for using treated backflows as irrigation sources.¹¹⁸ However, these potential uses would require a return system of pipes that, in most systems, is not technically feasible.¹¹⁹

III. CUBAN PLANNING INITIATIVES: INCORPORATING URBAN AGRICULTURE AND LAND-USE PLANNING

The previous Part outlined the benefits of and concerns about urban agriculture, as well as detailing a number of impediments to its formal implementation as an aspect of a land-use plan. This Part will examine

and the imperative therefore to recycle. *See, e.g.*, CAL. WATER CODE §§ 461, 13510 (2002); CAL. CODE REGS. tit. 22, § 60313 (2002).

114. *See* UNDP, *supra* note 7, at 201.

115. *See id.* at 201, Case 8.1 (describing a cholera outbreak in Santiago, Chile, caused by use of raw sewage in urban agriculture). This is of particular concern in a situation where, as here, there are inefficiencies and failures in the coordination of agriculture and other activities, as noted in the Havana example by Hernández, *supra* note 7, at 205. *See also* FAO, *supra* note 40, at 3.

116. *See, e.g.*, ALISON CASSADY, IN GROSS VIOLATION: HOW POLLUTERS ARE FLOODING AMERICA'S WATERWAYS WITH TOXIC CHEMICALS 3-4 (2002) (reporting that four out of five plants and facilities in nine states and Puerto Rico exceeded permitted wastewater discharges on average in excess of ten times the permitted levels).

117. UNDP, *supra* note 7, at 201-04.

118. *See id.* at 202.

119. *Id.* at 217.

the extent to which Cuban lawyers and land-use planners seem to be taking these concerns into account. In addition, this Part will highlight some of the concerns planners appear to have about the continued viability of urban agriculture in Cuba.

In Cuba, as elsewhere, urban agriculture will not continue if, as with most land-use decisions, there is no political will to support it.¹²⁰ The existence of resolutions or verbal commitments means nothing, in other words, unless urban farming becomes, quite literally, a desirable aspect of the landscape. Highly placed Cuban urban land-use planners recognize "the need to preserve land with agricultural value," and students of urban farming in Havana insist that the necessary political will exists.¹²¹

There are indications that Cuban authorities recognize the long-term possibilities of urban agriculture, both to promote the country's future food security and reinforce Cuba's national identity as a nation following a different path.¹²² Importantly, both of these goals are not achieved by simply increasing domestic food production with the utilization of abandoned or unused land for agricultural purposes. For example, the creation of usufructory rights (entitlements similar to long-term leaseholds or tenurial holdings for urban farmers) clearly signals a governmental desire to formalize and support urban agriculture in the long run.¹²³ The modern history of Cuba began, of course, with state appropriation of most privately held land. The political significance of the creation of such quasi-private entitlements cannot, therefore, be overemphasized.¹²⁴ In addition, Cuban authorities recognize that regularizing urban farming, and the associated efforts to clean up abandoned and overgrown lots, deeply alters the relation of the individual to the place in which he lives, transforming "his mentality, his culture, and his participation in fulfilling basic necessities for him and for the city."¹²⁵ The government's 1993 establishment of the UBPCs, smaller,

120. See, e.g., HIROYUKI NISHIMURA, AGRICULTURE IN URBANIZING AREAS: CONFLICTS AND WAYS TOWARDS HARMONY, SOUTHEAST ASIAN COUNTRIES AND JAPAN 155 (1992).

121. "La necesidad de preservar los suelos con valor agrológico." Andrea Alfonso Pérez & Aracelis García Padrón, *Lo Esencial en el Nuevo Esquema de la Ciudad de la Habana*, 1 PLANIFICACIÓN FÍSICA CUBA 68, 70-71 (2001) (copy on file with author). See MURPHY, *supra* note 2, Executive Summary; Chaplowe, *supra* note 6, at 76-80.

122. See, e.g., MURPHY, *supra* note 2, at 94.

123. See *id.* at 44. Such holding in usufruct has precedents, even in different economic structures. See, e.g., IDRC, *supra* note 7, at 60-61 (describing "use rights" in Kampala, Uganda).

124. See, e.g., DÍAZ-BRIQUETS & PÉREZ-LÓPEZ, *supra* note 11, at 4-5 (noting radical redistribution of property after the Cuban Revolution).

125. Hernández, *supra* note 29, at 200. The passage reads in full:

worker-owned cooperatives that replaced larger, state-owned, and input-intensive farms, is a key example of the government's attempts to regularize urban farming.¹²⁶

Although on their face these efforts appear to create forms of private property, they may more accurately be said to reflect a revitalized effort to secure the revolutionary goal of resisting foreign domination of Cuban food production. On the one hand, the government holds the underlying land,¹²⁷ enabling it to resist future appropriation or control by foreign multinationals, thus preventing a recurrence of the pre-revolutionary agricultural monopoly power that perpetuated the calamitous rule of sugar.¹²⁸ On the other hand, this development gives workers self-management and self-financing rights they did not previously have.¹²⁹ The resulting creation of a semi-private agricultural

The enormity of this popular mobilization has been a local government achievement, judging from modifications in the urban landscape from which have disappeared improvised dumps and parcels and abandoned spaces full of weeds and all that can proliferate [in such places]. A man's involvement [in such efforts] thus transforms both his mentality, his culture, and his participation in fulfilling basic necessities for him and for the city. [*La masividad de esta movilización popular ha sido un logro del gobierno local, apreciándose modificaciones en el paisaje urbano donde han desaparecido vertederos improvisados y parcelas y espacios abandonados a las malas hierbas y todo lo que en ellos pueda proliferar. Así como la implicación transformadora en la mentalidad del hombre, su cultura y participación en la satisfacción de necesidades vitales para él y para la ciudad.*]

Id. In fact, the legislation creating the Basic Units of Cooperative Production (UBPCs) provided that land would be in usufruct unlimited in time. Pérez & Echevarría, *supra* note 48, at 265.

126. See MURPHY, *supra* note 2, at 10. UBPC stands for *Unido Básico de Producción Cooperativa*. This affected 82% of the country's agricultural land. Most UBPCs, which now constitute at least 60% of national agricultural land ownership, are not in urban or suburban areas, but are dedicated to sugar production in rural areas. See *id.*; see also SINCLAIR & THOMPSON, *supra* note 3, at 21. This Article focuses, however, solely on UBPCs within urban zones.

127. See MURPHY, *supra* note 2, at 10. As one set of observers diplomatically notes: "[a]nother issue concerns the new cooperatives' independence from the state. Although the UBPCs are legally autonomous, the state continues to exercise considerable influence on the activities of many cooperatives." SINCLAIR & THOMPSON, *supra* note 3, at 20.

128. See MURPHY, *supra* note 2, at 6 (noting that by 1959, "corporations and U.S. citizens owned 75% of arable land in Cuba. . . . Five U.S. sugar companies owned or controlled over two million hectares in Cuba, a nation with only 6.8 million hectares of agricultural land" (references omitted)). As far back as 1951, as unlikely a source as the World Bank noted the need for, and many impediments to, diversification of Cuban agriculture. TRUSLOW, *supra* note 22, at 94-96. Still today, despite the recognized need to diversify, "paradoxically, Cuba cannot afford to abandon sugar despite the mounting losses. No other export is capable of generating \$600 million of foreign exchange and employing approximately 400,000 agricultural workers." SINCLAIR & THOMPSON, *supra* note 3, at 36. The end of "King Sugar" in Cuba, may, nonetheless, be in sight. See, e.g., David Gonzalez, *Cuba's Bittersweet Move to Trim Its Sugar Crop*, N.Y. TIMES, Oct. 9, 2002, at A4 (reporting the Cuban government's closure of "about half of its sugar mills").

129. See MURPHY, *supra* note 2, at 10.

market "must become a factor in the increase of yields of nutritional agricultural products."¹³⁰ Thus, individuals have a direct stake in providing for themselves and their communities in a manner that is linked to the larger aim of the state to preserve its own identity, even in the face of the increased international competition Cuba will face after the potential end of the U.S. embargo.

Urban land-use planners, and the lawyers who serve them, must also take other concerns into account. Specifically, Cuban land-use planners are keenly aware that collective farmers in the UBPCs need to work with their local governments, the *Consejos Populares*.¹³¹ Moreover, "the creation of UBPCs required adaptation as much to link to touristic production as for their own purposes."¹³² In short, like good land-use planners anywhere, Cuban authorities appear to recognize that neither political will nor a shift in attitudes about food self-sufficiency and its role in national identity and security are enough to insure the permanency of urban agriculture. For that, Cuban sources confirm, more deliberate land-use plans that consider competing development, economic, and environmental concerns are essential.

María Hernández, an engineer associated with the Physical and Architectural Planning Department for the City of Havana, examined urban farming in Havana in terms of activities within three concentric circles: a core consisting of the most densely populated portion of the city, a second circle consisting of an "area that borders and mingles with

130. Hernández, *supra* note 29, at 205. The full passage reads:

I should note that the recent constitution of an agricultural market, starting with the approval of Decree Law 191 of September 1994, permits all of the above-mentioned producers in this work (with the exception of milk and its derivatives) to compete in the commercialization of the excess over the commitments they [are obliged to] hand over to the STATE [sic]. This important measure must become a factor in the increase of yields of nutritional agricultural products. [*Debo observar que la reciente constitución de un mercado agropecuario, a partir de la aprobación del Decreto Ley 191 de Septiembre de 1994, permite a todos los productores aludidos en este trabajo (con excepción de la leche y sus derivados), concurrir a comercializar excedentes de sus compromisos de entrega al ESTADO. Esta importante medida debe convertirse en un factor de elevación de los rendimientos en la producción agroalimentaria.*]

Id.

131. See Hernández, *supra* note 29, at 204 (describing the role of a local government in reducing the costs of transport for a small milk producer and suggesting that such cooperation, and even ceding some control to the local population, may be necessary for future UBPCs); see Companioni et al., *supra* note 7, at 224-25 (explaining the role of *Consejos Populares* in urban agriculture).

132. Hernández, *supra* note 29, at 204 ("Crear las UBPC requería adecuación tanto por la vinculación de las producciones al turismo como por las dimensiones de las mismas.").

the city, closest to urbanization"¹³³ (what could be considered the growing suburbs), and a third, most distant fringe¹³⁴ consisting primarily of agricultural land.¹³⁵

Her discussion of these three circles is particularly striking because, although ostensibly well-disposed to urban farming, her commentary reflects the biases of the vast majority of urban land-use planners. Like her counterparts in Houston and Harare, Hernández sees cities as places for living and working, and only reluctantly concedes that work might include farming. For instance, in her discussion of the central core, Hernández acknowledges that the campaign during the Special Period "urged the population to put into use all available spaces for food production with the end of direct consumption," which led to the building of "popular gardens" and carried with it sale of seed, basic tools, and identification of irrigation sources.¹³⁶ As she further acknowledges, this effort received significant popular interest, resulting in the cleaning up of improvised dumps and abandoned spaces.¹³⁷ And while she suggests that this experience was more successful than anticipated, she raises serious questions about its continuation.¹³⁸

133. *Id.* at 202 ("El área que bordea y se entrelaza con la ciudad, la más próxima a la urbanización.").

134. *Id.* at 203 ("The third and most distant fringe of agricultural territory of the provincial capital." ["La tercera y más alejada franja del territorio agrícola de la provincia capital."]).

135. It must be acknowledged that Havana was more developed than the rest of the country historically. However, Havana has not grown significantly since the Revolution. By 1994, more than 76% of the Cuban population lived in urban settings. Still, Havana today contains 33% of the total population, as compared to 25% at the time of the Revolution. See José Manuel Fernández Núñez, *Derecho urbanístico y ordenamiento urbano en Cuba*, 12 REVISTA CUBANA DE DERECHO 65-66 (1997). The conclusion I draw from these statistics is that it is fair to extrapolate from the Havana situation lessons that apply to the practice of urban agriculture to the rest of the country.

136. Hernández, *supra* note 29, at 200 ("[I]nstaron a la población a hacerse cargo de todos esos espacios disponibles para la producción de alimentos con fines de consumo directo.").

137. *Id.*

138. *Id.* at 201:

While the massive achievement demonstrated important results . . . , and cannot be compared to the experiences of other countries, it is no less certain that a preliminary analysis of [its] potential and suitable form for the city would have permitted an adaptation of this experience more satisfactory from its inception. That does not exclude possible improvements in the future. [*Si bien la masividad alcanzada muestra resultados importantes . . . , y no es comparable con experiencias de otros países, no es menos cierto que un análisis previo de potencialidades y definiciones propias para la ciudad hubieran permitido una adecuación más satisfactoria de esta experiencia desde su inicio. Lo cual no excluye perfeccionamientos posibles en el futuro.*]

Id. Hernández also indicates that the Cuban experience was unique, presumably referring to the exceptional economic circumstances of the Special Period. As this Article aims to show, such claims of Cuban exceptionalism may be overwrought, and Cuba's experience with urban agriculture is more typical of similar efforts elsewhere than it is not.

Notably, her first concern is not with the practical aspects of locating agricultural uses in urban spaces, but with what a U.S. planner would characterize as zoning concerns. "[S]paces and free parcels are *normally* destined for the *proper functions* of the city," particularly the construction of residences.¹³⁹ What is interesting here is the assumption that the housing of city residents, as opposed to growing food to feed them, is centrally what makes a city a city. For this reason, she suggests, the permanence of an urban garden in the short-, medium-, or long-term is highly contingent.¹⁴⁰ "The city," she continues, "possesses zones and urban assets that could require a different treatment in the decision to establish market gardens and the characteristics that they would have in these cases."¹⁴¹

In particular, Hernández explains that differences in city size need to be taken into account.¹⁴² What may work in a small provincial city would not work in the capital, not so much for technical reasons, but because the identity and culture of the two cities are different.¹⁴³ Again, what is of interest here is that the objection appears to be based on a conception of what is fitting for city folks, given their "identity" and "culture," rather than on any demonstrated empirical concern. In short, the above observations demonstrate that no matter how much urban agriculture is touted as a success story, underlying perceptions of its undesirability in urban environments can doom its permanence. To the extent that the objections to urban agriculture are based on notions as amorphous as urban "identity" or "culture," urban farming in Cuba faces considerable challenges. These challenges, however, are not unique to Special Period Cuba. Rather, they reflect a primary obstacle to urban farming in much of the world.¹⁴⁴

In this light, it is not surprising that the President and other officials of the Cuban Institute of Physical Planning, when recognizing that "the System of Physical Planning" constitutes "the spatial expression of the policies of the State and the Government" and that its "fundamental functions are over the use and destiny of the soil," did not list the incorporation of agricultural efforts into the planning process as part of

139. *Id.* ("Los espacios y parcelas libres están normalmente destinadas a funciones propias de la ciudad, entre ellas la construcción de viviendas como la más extendida.").

140. *Id.*

141. *Id.* ("La ciudad posee zonas y vías de valor urbanístico en las cuales se requeriría un tratamiento diferenciado en la decisión de establecer huertos y las características que estos deben tener en esos casos.").

142. *Id.*

143. *Id.* ("[D]e la misma manera difieren la identidad y la cultura de los pobladores.").

144. See *supra* notes 85-89 and accompanying text.

their long-term goals and aspirations.¹⁴⁵ In part, this inattention may result from the fact that land-use planning often lags behind unexpected social and economic exigencies like the demands placed on Cuba by the Special Period. As a result, it is not exceptional that land-use planning goals set for Havana province and Havana city for the year 2000, both of which were prepared in 1990, did not "evaluate the possibility of another use not traditionally conceived of as an urban function."¹⁴⁶ It is possible, however, that subsequent long-range planning will take nontraditional, agricultural uses into account as part of the urban plan. With respect to Havana, for example, planners have recognized the importance of urban agriculture since 1996.¹⁴⁷

To be sure, Hernández also considers other, more practical factors, chief among them location, environmental contamination from air and land, and methods for providing a steady water supply. She takes note, for instance, of the variety of factors that influence decisions to site agricultural enterprises, such as proximity to the coast or forests. Similarly, she worries about air contamination from mobile sources in heavily trafficked areas and stresses the importance of natural, nontoxic fertilizers.¹⁴⁸ She recognizes the need to grow fruit trees that not only provide food, but also help clean the environment,¹⁴⁹ an idea that was a

145. Monsoné et al., *supra* note 11, at 8 ("[E]l Sistema de la Planificación Física, que trabaja en la expresión espacial de las políticas del Estado y el Gobierno en sus diferentes instancias. Definió que sus funciones fundamentales son sobre el uso y el destino del suelo . . ."). Although the list of physical planning achievements does not include anything about the integration of urban agriculture into the planning process, the list does note completion of successful studies on food vulnerability, presumably meaning problems in supply and access, in the Oriente region, typically the poorest region on the island. *Id.* at 10.

146. Hernández, *supra* note 29, at 200 ("[N]i el esquema del Plan Director al año 2000, presentado en 1990 . . . , ni la Estrategia elaborada también en ese año . . . , evaluó la posibilidad de otro uso que no fuera el tradicionalmente concebido como función urbana.").

147. Pérez & Padrón, *supra* note 121, at 68, 70. From the numerous economic changes of the 1990s, Pérez & Padrón note the following factors that impact planning: "Change the organizational structure of agricultural and livestock enterprise, reclaim disperse habitat and introduce urban agriculture. Creation of the Basic Units of Cooperative Production, [both for] farms and cattle. Construction of detached housing in nonurban areas. Occupation of lands within the consolidated [planning] scheme." ["Cambia la estructura organizativa de la actividad agropecuaria, se retoma el hábitat disperso y se introduce la agricultura urbana. Creación de las Unidades Básicas de Producción Cooperativa, finqueros y vaqueros. Construcción de viviendas aisladas en áreas no urbanas. Ocupación de terrenos dentro de la trama consolidada."] *Id.*

148. See Hernández, *supra* note 29, at 201.

149. See *id.* Hernández's reference to growing fruit trees, *el fomento de árboles frutales*, that help preserve the environment is a reference to mangoes. Later in the same article, Hernández notes that "mango plantations . . . as was conceived in the *Cordón de la Habana*, have the double function of producing food and improving the atmosphere that surrounds the capital" ["plantaciones de mango . . . tal como se concibió en el *Cordón de la Habana*, tienen la doble función de productora de alimentos y de mejoradora del ambiente que rodea a la capital"]. *Id.* at 205; see also Companioni et al., *supra* note 7, at 230 ("Despite being a recent addition to the

central idea of the *Cordón de la Habana* in the immediate post-revolutionary period.¹⁵⁰ The reference to fruit trees deserves particular note because their planting suggests a permanent interest in long-term urban agriculture given the time investment required to produce a first crop.¹⁵¹

In sum, the observations of Hernández and other Cuban planning officials about agricultural uses in the urban core reflect an ambivalence, on the one hand not conceiving of agriculture as part of the truly urban norm but, on the other hand, recognizing the key role that cities play in executing a national food strategy.¹⁵² This ambivalent Cuban attitude towards urban agriculture, whether official or popular, mirrors those prevalent elsewhere in the world.

With respect to agricultural uses in the urban periphery, however, Hernández is more forgiving. This is in part because, in 1990, state entities were assigned unused areas in which to undertake food production in order to provide for the workers of those entities.¹⁵³ In the case of Havana province alone, this project resulted in the production of

urban agriculture movement, the planting, care, and uses of a variety of fruit trees along urban perimeters has long been a tradition in Cuba. . . . Current plans contemplate a broad program of nurseries . . . in future years . . . to accelerate urban fruit production.”); UNDP, *supra* note 7, at 180 (“Urban agriculture cleans the air by reducing dust and absorbing pollutants through its foliage.”).

150. Hernández, *supra* note 29, at 205. For a discussion of the *Cordón de la Habana*, see *supra* note 44 and accompanying text.

151. The commitment to plant tree crops suggests a more permanent role for urban agriculture. Cf. FREEMAN, *supra* note 7, at 91 (“The relative absence [in Nairobi urban agriculture] is obviously related in part to insecurity of tenure for the majority of urban farmers, who cultivate borrowed land and who realize that they could be evicted at any time.”).

152. However, because planners face different degrees of development in different areas, this is, admittedly, easier said than done. See Manuel Mendoza Castellanos et al., *Análisis y cartografía de la vulnerabilidad a la inseguridad alimentaria en Cuba*, 2 PLANIFICACIÓN FÍSICA CUBA 45, 46 (2001) (copy on file with author). They observe as follows: “The vulnerability to food insecurity is therefore a dynamic concept, not being the same for territories at different degrees of development.” [*La vulnerabilidad [a la inseguridad alimentaria] es por tanto un concepto dinámico, no siendo ella la misma para territorios con diferentes grados de desarrollo.*] The same article expresses the difficulty of integrating different data sets and considerations:

In this sense, the available socioeconomic data are not always sufficiently broken down so as to integrate them in nonspatial territorial units and, moreover, a great part of the statistical information is only accessible in aggregated [form] in units of a political-administrative character that does not necessarily reflect spatial form and its structure. [*En este sentido, no siempre los datos socioeconómicos se encuentran lo suficientemente desagregados como para integrarlos en unidades espaciales no territoriales y además, gran parte de la información estadística es accesible sólo agregada en unidades de carácter político-administrativo que no reflejan necesariamente la forma del espacio y su estructura.*]

Id. at 47.

153. Hernández, *supra* note 29, at 203.

almost 100,000 quintals on more than 3000 hectares of land.¹⁵⁴ Nonetheless, she again demonstrates some of the land-use planner's concern with aesthetics, noting the changes in the urban landscape.¹⁵⁵

Strikingly, however, Hernández is interested not so much in the problems of agriculture in the urban periphery (or its appearance), but in increasing production volume. To that end, she urges "a more detailed study of soils, topography, construction of small dams for irrigation and fish-raising, the utilization of natural fertilizers like composts that can, . . . bring forth higher yields."¹⁵⁶ Interestingly, Hernández's principal concern about agriculture in Havana's urban periphery has little to do with the activity per se, but with the high degree of local coordination required for its successful implementation. An essential component of this local coordination is that the local population, through the *Consejos Populares*, play an active role in developing and sustaining urban agriculture.¹⁵⁷ In addition, she notes that this local involvement can help identify food products not needed for tourism that can then go directly to benefit the population.¹⁵⁸ Implicitly, Hernández thus points to a major asset of urban agriculture in assuring its continued viability in Cuba, particularly its role in provisioning foods attractive to travelers.¹⁵⁹ Given the importance of tourism as a foreign exchange earner for Cuba, planners will do well to keep focused on the increased revenues that urban agriculture can help contribute to the Cuban economy.¹⁶⁰

Similarly, in the fringe of agricultural land surrounding the provincial capital, Hernández's principal concern is coordination, or the problems caused by a lack of it, between quasi-private entities like the UBPCs and local governments.¹⁶¹ She argues that the resident local population should be given direct control over part of the production.¹⁶²

154. A quintal is a weight measurement equivalent to 100 kilograms, or a little more than 200 pounds. *See id.* A hectare is 2.47 acres. *See id.*

155. *See id.*

156. *Id.* ("[U]n estudio más detallado de suelos, topografía, construcción de pequeños embalses para riego y cría de peces, la utilización de fertilizantes naturales como el compost pueden, . . . arrojar mejores rendimientos.").

157. *Id.*

158. *Id.*

159. *Id.*

160. Consider, for example, the following: Dr. Carolos Lage, a Vice President of the Council of State of the Republic of Cuba, said that the tourism sector is now and would remain in the future the country's largest source of U.S. dollars, generator of new employment opportunities, a creator of sources of financing, and a creator of markets for domestically produced products and services. U.S.-CUBA TRADE & ECON. COUNCIL, INC., ECONOMIC EYE ON CUBA 5 (1998), available at <http://www.cubatrade.org/eyeong.html>.

161. *See* Hernández, *supra* note 29, at 205.

162. *Id.*

However, she explicitly identifies the need for UBPCs to support the tourism industry.¹⁶³ This suggests some tension within the UBPC sector because the UBPC members wanted to steer their production towards themselves, not towards tourism. Given the severe food shortages Cuba experienced in the early 1990s, and the fact that Cuba's tourism sector was, and to a great extent remains, underdeveloped by comparison to other countries in the Caribbean basin, this should not come as a surprise.¹⁶⁴ However, it is essential for farmers, and planners, to appreciate that the linkage between the tourist and agricultural sectors can only strengthen the economic status and longevity of both activities in Cuban life.

In the agricultural fringe surrounding the capital, Hernández explores a number of examples that put in high relief the impact of land-use planning considerations on urban agriculture.¹⁶⁵ First, she examines the benefits of, and concerns about, decentralized control that led to the success of the effort.¹⁶⁶ Second, given the dispersion and varied types of production that typically characterize such agricultural efforts, she identifies the importance of more careful decision making with respect to urban agriculture.¹⁶⁷

With respect to decentralization, Hernández draws attention to the benefits of urban agriculture as a component of joint land-use and transportation planning.¹⁶⁸ She considers, for example, the success of small milk farming operations linked to small localities.¹⁶⁹ Although the operations did not completely satisfy local product demand, they did reduce transportation costs.¹⁷⁰ This must be considered an important achievement of successful urban agriculture, equally instructive for planners in a country with a struggling food production system like Cuba as for those in a capitalist, conglomerate-driven food production system like the one dominant in the United States. In addition, she notes that decentralization has an incentive-creating effect for local governments, since they benefit directly when production targets are exceeded.¹⁷¹

163. *Id.*

164. *See id.*

165. *See id.*

166. *See id.*

167. *See id.*

168. *See id.*

169. *See id.*

170. *See id.*

171. *See id.*

As for planning oversight, Hernández appears to advocate local oversight instead of that of a more centralized government entity.¹⁷² She looks, for instance, at the location of *La Empresa Genética Vacuna* (the genetic vaccine business), which uses some of the best soils in the territory for milk production, "in detriment to other fresh products demanded in the city."¹⁷³ The short-term problem, she notes, is that the infrastructure does not permit thinking about shifting this use to a more productive one.¹⁷⁴ Moreover, this particular business was situated over the principal water supply for the capital, therefore requiring great care in the use of natural fertilizers "and other agents that prevent environmental contamination."¹⁷⁵

Hernández also discusses hydroponic farms. As she observes, although hydroponic harvests have been impressive, "[n]evertheless, construction of these [hydroponic] installations has been executed largely over soils suitable for agriculture, affecting, among other things, fruit plantations, a result incompatible with environmental preservation."¹⁷⁶ Her comments reflect the fact that the implementation of urban agriculture in Cuba proceeded in fits and starts and, while producing admirable results, also resulted in missteps that require correction. As her remarks suggest, one remedy is to coordinate agricultural planning with local land-use oversight so as to insure the most efficient and effective use of the available land resources, thereby maximizing food production. Hernández further observes that local land-use planners "need to support better land and animal population management linked directly to more reduced spaces."¹⁷⁷ This observation is of particular importance because, as observers of the most successful modern farming practices know, successful, sustainable farming will require increased

172. *See id.*

173. *See id.*

174. *See id.*

175. *Id.* at 204. She states in full that "[t]his business sits, moreover, over the Vento subterranean water basin, the capital's principal supply source. This requires, more than in other instances, the use of natural fertilizers and other agents that prevent environmental contamination, which appears to be more difficult to achieve in forms of large-scale exploitation" [*"Esta empresa se asienta además sobre la cuenca de agua subterránea de Vento, la principal abastecedora de la capital. Por ello requiere, más que otras, del uso de fertilizantes naturales y de otros agentes que impidan la contaminación del medio, lo que parece más difícil de lograr en formas de explotación a escala mayor"*].

176. *Id.* at 205 ("*Sin embargo, la construcción de estas instalaciones se ha ejecutado en su mayoría sobre suelos aptos para la agricultura, incluso afectando plantaciones de frutales, lo que resulta incompatible con la preservación del medio.*").

177. *Id.* at 204 ("*También deben propiciar un mejor manejo de la tierra y la masa animal por la vinculación directa a espacios más reducidos.*"); see Núñez, *supra* note 135, at 67.

production on reduced acreage.¹⁷⁸ In short, Hernández's comments constitute a plea for the essential importance of incorporating careful land-use reviews into any urban agricultural effort that strives for sustainability.

This is easier said than done. Often, this is because land-use planners, whether legislators or civil servants, tend not to conceive of agriculture as an appropriate urban use. The municipal zoning codes of several large U.S. cities serve as well as any other examples. In Chicago, Illinois, for instance, "[a]gricultural uses, including nurseries and truck gardens, provided that no offensive odors or dust are created," are permitted in single-family residential (R-1) districts.¹⁷⁹ The code, however, says nothing more about the subject. Los Angeles, California, permits "truck gardening (except nurseries)" and "the keeping of equines, poultry, rabbits and chinchillas," provided such activities are "not for commercial purposes" and, in the case of horses, provided that certain minimum square footage requirements per animal are met.¹⁸⁰ In New York City, the concern is with agricultural activities (i.e., the use of pesticides or fertilizers) that contaminate the water supply, whether by "intentional, knowing or reckless act[s] or omission[s]."¹⁸¹ While New York, like other cities, allows agricultural uses in some residential and commercial districts, it does so, like the other cities, with nuisance and sales limitations.¹⁸² In Los Angeles and San Diego, California, cities with still vibrant agricultural sectors, unlike Chicago and New York, agricultural uses are permitted only within agricultural zones. In San Diego, for example, "single dwelling unit homes" are permitted "at a very low *density* . . . to minimize the potential conflicts with residential uses."¹⁸³ If the U.S. example is in any way typical here (and I think it is), urban planners tend either not to think about agriculture or, if they do, to think about its negative consequences and isolate its location.

178. See, e.g., Colin Crawford, *San Diego Farming Finds It Can Thrive Without Beachfront: Soaring Property Values Chase Farms Inland, But They're Selling More Than Ever*, WALL ST. J., Feb. 9, 2000, at B16 (noting that San Diego County agricultural output nearly doubled during the 1990s while the total agricultural acreage remained nearly constant).

179. CHI., ILL., ZONING CODE § 17-28-040 (2002).

180. L.A., CAL., ZONING ORDINANCE § 12.07.01(A)(3) (2000) (for RE Residential Estate Zones); *id.* § 12.07.1(A)(3) (RS Suburban Zone); *id.* § 12.08(A)(3) (R1 One-family Zone); *id.* § 12.09(1) (R2 Two-family Zone). The ordinance contains no provision for agricultural uses in other parts, however. See, e.g., *id.* § 12.08.1(B) (RU Residential Urban Zone); *id.* § 12.08.5(B) (RW1 Residential Waterways Zone).

181. NEW YORK, N.Y., RULES OF THE CITY OF NEW YORK tit. 15, ch. 18, §§ 42, 44 (2001).

182. NEW YORK, N.Y., ZONING RESOLUTION, App. A: Index of Uses (2001).

183. SAN DIEGO, CAL., MUNICIPAL CODE § 131.0303 (2001); *cf.* LOS ANGELES, CAL., ZONING ORDINANCE, § 12.05(A)(6)(7).

For Cubans and others interested in sustaining urban agriculture, the question becomes one of trying to find ways to provide formal regulatory support for the practice. Also, the U.S. embargo will one day end,¹⁸⁴ opening up the Cuban market to the possibility of cheap (and cheaply transportable) U.S. agricultural products. For this reason, the question of how best to sustain urban agriculture carries a special urgency in light of the island's successes with the practice since the onset of the Special Period.

IV. A LAND-USE PLANNER'S BLUEPRINT FOR THE FUTURE OF CUBAN URBAN AGRICULTURE: DOMESTIC ACTIONS AND INTERNATIONAL POSSIBILITIES FOR LIFE AFTER THE EMBARGO

A. *Five Suggestions for Permanence*

A land-use planner attempting to draw a blueprint for a long-term future of successful urban agriculture would do well, in my view, to concentrate her attention on at least five areas.

1. Entrust National *and* Local Actors with Urban Agriculture Management Authority

Clearly, there is a place for the national government in the management of urban agricultural practice. In my view, that role is one of active but nonintervening overseer. In any event, for urban agricultural practice to achieve permanence, what is unquestionably needed is a written and detailed, long-term commitment to the practice, in a manner that specifies the respective roles of national, provincial, and local parties, both public and private.

Yet to an outside observer of Cuba's post-revolutionary history, a striking feature is the rapidity with which plans change. The nation's history of urban agriculture, from the early efforts to promote food self-sufficiency and the *Cordón de la Habana*, to the reversion to the dominant pre-revolutionary model of the sugar monoculture, and back again to the Special Period's emphasis on urban agriculture, is a clear example of this phenomenon.

Successful land-use planning, by contrast, relies upon the creation of expectations that can be pursued and fulfilled in the long-term for both

184. See, e.g., Stephanie F. Cahill, *Partnering with Cuba: Group Brings Together Cuban and American Lawyers to Talk Shop*, ABA J. E-REPORT (Oct. 11, 2002), at <http://www.abanet.org/journal/oct11cuba.html> (noting that Antonio Zamora, a Cuban-American and Bay of Pigs veteran, predicts a near-end to the U.S. embargo).

a nation as a whole and for its constituent parts. As the above comments suggest, however, the highly centralized Cuban system of social and economic planning may help buttress the long-term success of Cuban urban agriculture, provided that individuals and local interests continue to be accorded some control over, and individual benefits from, their production.¹⁸⁵ Clearly, Cuban authorities are permitting the development of a more mixed economy, one that includes urban agriculture, than was possible before.¹⁸⁶ It is equally clear, however, that more than informal linkages in the short-term are required if urban agriculture is to achieve permanency in Cuba.¹⁸⁷ Examples elsewhere confirm that land-use regulations serving to permit and support urban agricultural efforts are essential if the practice is to continue.¹⁸⁸ Several aspects of the Cuban experience suggest, however, that Cuba can cement the linkages between urban and agricultural planners that are necessary to sustain urban agriculture. First, this is true because the country's planners have recognized the value of such efforts since the immediate post-revolutionary period and the creation of the *Cordón de la Habana*. Therefore, they have existing plans from which to work and adapt current experience.

Second, Cuban planners are giving more power to local authorities to make decisions over the food they grow. In a country accustomed to organization from the top, this cannot be an easy transition. Nonetheless, as indicated in the previous section, greater local control over the provisioning needs of the local population is essential to the permanence of Cuban urban agriculture. On the one hand, because widespread public education and unity of purpose is needed to solidify the place of urban

185. In fact, "[t]he contraction of the central state apparatus that began in April 1994 (a reduction from 50 to 32 entities), has strong effects on functional simplification, the improvement of planning and financial control and the implementation of new administrative techniques." Nieto & Delgado, *supra* note 14, at 42. There is little question that the more official involvement in the urban agricultural sector, the more successful the urban gardens will be, whether in Cuba or elsewhere. See, e.g., Chaplowe, *supra* note 6, at 77.

186. See, e.g., el-Raifi, *supra* note 28. This is a development, moreover, that the Cuban population appears to accept. See, e.g., the French language version of el-Raifi's article, which concludes as follows: "Professor Nelida Gancedo [of the University of Havana] adds that Cubans 'always aspire to a planned economy, but in a new framework that takes into account conditions that the international economy imposes.'" "[L]a professeur Nelida Gancedo ajoute que les Cubains «aspirent toujours à une économie planifiée, mais dans un nouveau cadre qui tient compte des conditions qu'impose l'économie internationale.»"] English translations of the Ottawa, Canada-based IDRC do not always translate word-for-word.

187. Interview with Arq. Aracelis García Padrón, in Havana, Cuba (Sept. 10, 2002) (discussing the lack of a formal structure for urban agricultural planning at the Department of Physical Planning & Architecture for the City of Havana).

188. IDRC, *supra* note 7, at xiv.

agriculture, it is essential to maintain a role for national, provincial, or large metropolitan agencies to promote and oversee the practices.¹⁸⁹ That is, as in most countries, smaller municipalities generally do not have the resources needed to promote effectively the benefits of these practices. On the other hand, a considerable degree of local control is essential. Here, too, however, it appears that Cuban land-use planners are beginning to recognize the importance of this fact for food security, and thus, by extension, for urban agriculture's role in the national economy.¹⁹⁰

With respect to higher urban farmer visibility and public education on the advantages of urban agriculture, Cuba faces a clear challenge. The longer-term success of this practice likely will be assured only if urban agriculture is seen as more than a way for urbanites to sustain

189. *Id.* at 7. This is particularly important as the structure of the economy changes. *Id.* at 11. This is, in fact, happening in Cuba, by virtue of the fact that the *Asociación Cubana de Técnicos Agrícolas y Forestales (ACTAF)*, is in the eighth year of publishing the magazine *Agricultura Orgánica*. Measuring the extent of the success of these educational efforts is, however, outside the scope of this Article.

190. See, e.g., Castellanos et al., *supra* note 152, at 47:

Hence, being [that] the municipality [is] the administrative unit where management and government are realized, [it is] this territorial level that brings an appropriate insight into the analysis at issue, and a good part of the information that in Cuba is gathered and published appears available across structures that conform to the Political-Administrative Division, and at the same time also constitutes a unity of management and generalized application for the institutions in the country, [it] is that which has itself been selected as the unit for obtaining data for analysis and integration. [*De ahí que, siendo el municipio la unidad administrativa donde se realiza la gestión y el gobierno, que este nivel territorial aporta una visión apropiada al análisis en cuestión y que una buena parte de la información que en Cuba se capta y publica aparece disponible a través de las estructuras que conforman a la División Político-Administrativa y a la vez constituye también una unidad de manejo y aplicación generalizada por las instituciones en el país, sea que se ha seleccionado la misma como la unidad de obtención de datos para su análisis e integración.*]

Sinclair and Thompson argue that "[t]he government should move further away from direct involvement, for example, in production, price controls and the ration system, and instead shape the agricultural system through monetary policy (credit, investment, taxation, etc.), regulations and incentives." SINCLAIR & THOMPSON, *supra* note 3, at 41. Under their scheme, "[p]rivate producers, cooperatives, and semi-autonomous state enterprises would act within a government-set regulatory framework, but would have greater autonomy over their production decision-making and operate more efficiently." *Id.* Such reforms have begun to happen, according to Deere, who describes the tax scheme that applies to sellers of produce at the new markets: "[t]he tax rate ranges from 5% of the value of projected gross sales in the city of Havana to 15% in the small, rural markets of the interior. This differential is due to the government's objective of channeling the greatest volume of foodstuffs to the capital, where the food shortages are potentially the most politically volatile." Deere, *supra* note 48, at 4. Decentralization accords, moreover, with "[t]he most important trend in urban agriculture," namely "an acceleration of public-private partnerships." JAN SMIT, CITIES FEEDING PEOPLE REPORT 18: URBAN AGRICULTURE, PROGRESS AND PROSPECT 1975-2005 17 (1996), available at <http://www.cityfarmer.org/rpt18TOC.html>.

themselves in a less-developed country.¹⁹¹ Indeed, the permanence of urban agriculture will more likely be assured if the practice is encouraged as a path different from that of industrial agriculture. If any country can realize that goal, it may be Cuba, a country with a contemporary history which demonstrates that the consumer capitalist model is not the only viable one. In fact, if one accepts Cubans' own self-assessment, urban agriculture can continue to work there with moderate decentralization.¹⁹² It must also be noted that, in the longer term, a concern about Cuban agriculture is diversification in crop selection. This diversification gives a population unused to it a taste of the advantages of self-reliance and increased control over one's life.¹⁹³ These have not, of course, been characteristic features of Cuban life since the Revolution and thus reveal a potentially radical aspect of urban agriculture, at least as concerning the stability of the ruling regime's ideology. That is, to the extent that Cubans come to enjoy this control and the benefits it can bring, they may

191. The fact that self-provisioning is a key feature of Cuban urban agriculture likely will create necessary incentives, and practice, to build it into the routine fabric of urban living. On the self-provisioning aspects of Cuban urban agriculture, see, e.g., Companioni et al., *supra* note 7, at 227, not to mention the fact that such a high percentage of fresh produce from in and around the capital (90%) is used to provision Havana. *Id.* at 235 n.1.

192. *Cf.*, e.g., Pérez & Echevarría, *supra* note 48, at 266-72 (comparing the differing experiences of two UBPCs growing different crops in different locations).

193. CEUR Report, *supra* note 25, at 209:

Self-reliance is preoccupied with making the city, or the distinct urban groups, more self-sufficient In no instance is there a plan of self-rule, but there is a re-definition of linkages, with the end that initiative remains in the hands of those interested, of the individuals [involved in] the process of development. [*El autocentramiento (self-reliance) se preocupa por hacer a la ciudad, o a los distintos grupos urbanos, más autosuficientes No plantea en ningún caso una autarquía, pero sí una redefinición de las vinculaciones, con el fin de que la iniciativa quede en mano de los interesados, de los sujetos del proceso de desarrollo.*]

Of course, this could lead to pressure for freehold tenure, which, given Cuba's post-revolutionary commitment against concentrated land holding, could be socially disruptive. As it is, limited evidence suggests that some Cubans are suspicious of state involvement in these changes in land use and rights. "One disincentive" to joining urban gardening clubs, for instance, "is the fear among some gardeners of state control and interference." Such clubs allow gardeners "to pool resources and experience." Chaplowe, *supra* note 6, at 63-64. This suspicion may, however, be not just a suspicion of Cuban state involvement, but of foreign involvement. Chaplowe further observes that some gardeners are equally wary of NGO influence and control over the urban gardens, primarily in the forms of material donations and technical assistance. Cuba's history of foreign dependence has reinforced concern over loss of autonomy. As one agricultural extensionist stated, "Too often the NGOs try to solve *our* problems: we need to establish from the beginning that we (the gardeners) are the principal actors, that we make the decisions." *Id.* at 71 (emphasis in original); *cf.*, e.g., IDRC, *supra* note 7, at 64 (discussing tenure reform in Kampala, Uganda, during the early 1990s and noting that "[f]ormalization of the [land tenure] rules (and the ability to enforce them) is presumed to be a necessary, though not necessarily sufficient, condition for future economic growth").

want even more control over land and its products. I raise this issue, however, only to flag it as a concern for the future in the event that urban agriculture, and the land uses upon which it relies, gains strength as a key part of the Cuban economy.

2. Beware the Development of an Anticommons

A growing body of property theory warns against a phenomenon labeled the "anticommons." This idea inverts the well-known phenomenon of the "tragedy of the commons," by which no individual has an incentive to reduce her use of commons property and, as a result, the resource is rapidly depleted in the absence of ordering and access principles.¹⁹⁴ An anticommons property regime is one, by contrast, "that may result when initial endowments are created as disaggregated rights rather than as coherent bundles of rights in scarce resources."¹⁹⁵ A way to avoid the creation of an anticommons, therefore, is not to permit disaggregated rights at their initial creation. Unfortunately, market disaggregation already appears to be well underway in Cuba. In this, Cuba's experience appears to parallel that of the former Soviet Union. In the former Soviet Union, the downfall of communism gave rise to what is now the quintessential anticommons, with a flourishing streetside kiosk trade operating in view of large, and largely empty, state markets.¹⁹⁶ Similarly, Cuba's hectic, if energetic, effort to open up food markets with the onset of the Special Period runs the risk of becoming (if it has not already become) exactly the same sort of anticommons.¹⁹⁷ The creation of different modes of production in the form of UBPCs, added to the

194. See Garrett Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243 (1968).

195. Michael A. Heller, *The Tragedy of the Anticommons: Property in the Transition from Marx to Markets*, 111 HARV. L. REV. 621, 623 (1998).

196. See *id.* at 627-60.

197. This has been happening for over a decade. See Carmen Diana Deere & Mieke Meurs, *Markets, Markets Everywhere? Understanding the Cuban Anomaly*, 20 WORLD DEV. 825, 825-37 (1992) (considering the income inequalities and planning dislocations caused by introducing market mechanisms into centrally planned economies as they become more complex, in light of Cuba's rejected experiment with "peasant markets" in the 1980s); see also SINCLAIR & THOMPSON, *supra* note 3, at 40 (describing price distortions because of simultaneous private market and state price-fixing).

As this Article has labored to stress, this is not an aspect of urban agriculture typical only of Cuba, even though the particular form of disaggregation and competition over type of property rights may differ. See, e.g., IDRC, *supra* note 7, at xiii, 63 ("Given the confusing array of land-tenure arrangements within the city [of Kampala], and in particular the overlapping rights of various parties . . . urban planners have long been concerned about unplanned subdivision and fragmentation of land holdings, and with how to make sufficient land available and acquirable for urban development.").

existing forms of cooperatives,¹⁹⁸ along with state-controlled points of sale and distribution, from “free” markets and roadside stands to popular gardens, “ferias,” “topped markets,” dollar stores, and peso stores, all attest to market disaggregation.¹⁹⁹ Cuban lawyers appear to be aware of this problem and its implications, in particular for the years ahead, as the economy continues to change.²⁰⁰ Indeed, very early on in the Special Period, there were signs of the growing income inequalities that characterize anticommons regimes.²⁰¹ In a society as committed as Cuba has been to increased social and economic equality, the effect on market disaggregation on urban agriculture could threaten its demise if it is perceived as fostering social inequality. In fact, the Cuban peasant markets of the 1980s appear to have been abolished, in part, precisely because of such anticommons characteristics.²⁰² A comprehensive

198. Specifically the Credit and Services Cooperatives and Agricultural Production Cooperatives, in addition to “a third group of private, un-affiliated farmers (about 20,000 small producers) who own their land but are not part of a cooperative.” SINCLAIR & THOMPSON, *supra* note 3, at 14. This third group “control[s] about 1% of the agrarian land, about 66,100 hectares.” *Id.*

199. *See id.* at 30.

200. Núñez, *supra* note 135, at 69-70.

In the case of the remaining provincial capitals, the *Urban Director Plans* are relied upon like semi-official approvals; and in some disputes with entities a mere formality, [the entities] arguing that such plans of urban development are not based upon the necessary judicial validation. The same thing occurs with urban projects of lesser scope, that do not rely upon juridical norms that could be created to support them, and in fact they have created complicated situations. This will become more difficult in the coming years with the appearance of new mixed associations and real property entities. [*En el caso de las restantes capitales de provincias, los Planes Directores Urbanos cuentan con aprobaciones semioficiales; y en algunos litigios con entidades para su cumplimiento, éstas argumentan que tales planes de desarrollo urbano no cuentan con la validez jurídico necesario. Lo mismo ocurre con los proyectos urbanísticos de alcance menor, que al no contar con las normas jurídicas que los sustentan podrían crearse, y de hecho se han creado, situaciones complejas. Ello se tornará más difícil en los próximos años con la aparición de nuevas asociaciones mixtas y entidades inmobiliarias.*]

Id. (emphasis in original).

201. Chaplowe, *supra* note 6, at 82.

202. As Deere & Meurs explain:

While the free peasant market generated the expected increase in private sector output and marketable surpluses, the free market almost immediately generated side effects which many felt to be contrary to the Cuban goals of socialist development. Initially, complaints focused on the extremely high prices which reigned on the free peasant market. . . . High peasant market prices also offered inordinate benefits to . . . the most lucrative urban markets, particularly, the city of Havana. . . . While the markets did stimulate work effort by offering urban workers outlets for their disposable income, it was also felt that they were causing excessive differentiation in the living standards of urban dwellers. . . . Also significant for Cuban development policy was the fact that market forces could not be contained within the narrow sphere defined for them by the

planning process that gives the national government a central oversight and coordinating role while delegating to localities control over their own processes and distribution would help avoid the growth of a Cuban anticommons. Again, this is an issue, albeit not one stated in "anticommons" language, that has not escaped the purview of Cuban lawyers. In particular, the Cuban Bar's concerns appear to relate to potential conflicts between Cuban laws and resolutions affecting urban land tenure and use, and, particularly important for urban agriculture, the use of abandoned lots.²⁰³

3. Include an Agricultural Element in Urban Land-Use Plans

In most countries, land-use planning includes a number of elements: transportation, utility infrastructure, the relation of commercial, residential, and industrial uses, and the need for open land and parks.²⁰⁴ Urban agriculture, however, given the low regard in which the practice is sometimes held, requires more. An urban agricultural element, in a Cuban or any jurisdiction's land-use plan, needs to include

state. Predictably, they began to exert a broader influence as farmers took to the peasant market production previously channeled through state agencies.

Deere & Meurs, *supra* note 197, at 831-82 (footnote and citation omitted).

203. Núñez, *supra* note 135, at 70-71.

Other problems with urban land valuation, present doubts and are partially collected in resolutions and regulations, not always coherent in themselves. . . . [For example,] Law 691 of 1959 concerning abandoned lots, established that a lot was considered *abandoned* if the building constructed over it did not have a minimum value superior to three times the average value of such lot. This is an international principle, and it does not mean a free urban realty market exists in Cuba, but rather that [the market] realize the [land's] value and the necessity of its rational use. Nevertheless, such question does not appear to preoccupy many natural and juridical persons in a country of limited territory, one that annually loses agricultural land to urbanization. [*Otros problemas como el valor del suelo urbano, presentan dudas y están parcialmente recogidos en resoluciones y disposiciones, no siempre coherentes entre sí. . . . [Por ejemplo] La Ley 691 de 1959 sobre Solares Yermos, estableció que un terreno se consideraba yermo, si la edificación construida sobre él no tuviese un valor mínimo superior a tres veces el valor promedio de dicho terreno. Este es un principio internacional, y no se trata de que en Cuba exista un mercado libre del suelo urbano, sino que se comprenda su valor y la necesidad de su uso racional. Sin embargo, tal cuestión no parece preocuparle a muchas personas naturales y jurídicas en un país de reducido territorio, y que anualmente pierde terrenos de uso agropecuario que son urbanizados.*]

Id. (emphasis in original); see also *supra* note 200.

204. See, e.g., JULIAN C. JUERGENSMEYER & THOMAS E. ROBERTS, LAND USE PLANNING AND CONTROL § 2.8 (1998). Of course, international land-use practices vary. Nonetheless, even if the language of "elements" and "comprehensive plans" is not used, the concerns are generally the same. See, e.g., U.N. FOOD & AGRIC. ORG. LAND & WATER DEV. DIV., PLANNING FOR SUSTAINABLE USE OF LAND RESOURCES: TOWARDS A NEW APPROACH (1995).

provisions that will insure a perceptual change favorable to urban agricultural practice.

A central part of any such effort would consist of provisions to increase the visibility of the urban farmer. With its new system of roadside stands and popular gardens, Cuba has clearly embarked on this road.²⁰⁵ More, however, is needed. In this respect, international agencies and foreign governments could be of great assistance by helping to develop model land-use codes designed to showcase urban agriculture and working such features of current Cuban practice into those model codes.²⁰⁶ To the extent that U.S.-Cuban relations continue their long, slow thaw, U.S. planners could be of great service to their Cuban counterparts, and also, in the process, learn something themselves about the value of integrating an agricultural element into their city planning. Given the traditional resistance of the "elites, bureaucrats and urban planners" to urban agriculture, this will not be an easy task.²⁰⁷ In the case of urban agriculture, this opposition could be especially formidable because, in creating incentives to perform urban agriculture, the government may need to create tax or other financial inducements or subventions to help support the practice, although preliminary indications are that the profit motive has served to increase participation—and yield—in urban agriculture.²⁰⁸ Thus, in crafting such model or actual codes, it will be essential to emphasize the central place urban agriculture can have as a means of securing the dual goals of food security and improved nutrition.

Furthermore, an urban agricultural element in a comprehensive land-use plan must be integrated with an employment element. Unlike more traditional, rural agriculture, urban agriculture places different demands on the workforce and the communities in which it exists. On one of the urban farms in suburban Havana, the cooperative farm's

205. See, e.g., UNDP, *supra* note 7, at 236. For a discussion of the popular gardens, see Chaplowe, *supra* note 76.

206. See UNDP, *supra* note 7, at 252.

207. IDRC, *supra* note 7, at 26.

208. See SINCLAIR & THOMPSON, *supra* note 3, at 31. As the work of Deere and Meurs makes clear, however, the inequalities that can result from such market openings have, in post-revolutionary Cuba, met opposition. See generally Deere & Meurs, *supra* note 197. To be sure, the long-term sustainability of urban agriculture in Cuba requires a delicate balancing of market incentives, changes in foreign investment and activity, and state social policy. See, e.g., Chaplowe, *supra* note 6, at 82 (considering the future of Havana's popular gardens in light of comparable international experiences). By contrast to other countries, however, the Cuban government's extension of long-term, low-interest loans and subsidized agricultural inputs may help avoid some of the overwhelming difficulties that doom urban farmers elsewhere. See SINCLAIR & THOMPSON, *supra* note 3, at 19 (loans to UBPCs), 23 (subsidized inputs for urban growers); cf. IDRC, *supra* note 7, at 112 ("Agricultural credit is almost universally unavailable to urban farmers, even where credit is granted to poor urban businesses.").

president, a former Ministry of Agriculture civil servant, spoke of the “*nuevos campesinos*” on his farm. None of his 52 workers, he explained, were farmers before 1997. Yet, he maintained that they enjoyed being part of what had become a profitable enterprise.²⁰⁹ The problem with this workforce, he explained, is that, even though 95% of them live virtually adjacent to the operation, “urban farmers want to go at 4:00 p.m.,” like the government workers they once were, “to get the kids, watch television, and do other things, instead of starting work at 4:00 p.m.,” the farming norm in a tropical country punished by the midday sun.²¹⁰ This suggests, therefore, that a land-use plan promoting urban agriculture would also have to include amenities like child care and recreational opportunities that would encourage agricultural work. With proximity to such amenities, an urban farmer would not have to worry so much about his children after school, or could take a swim or play soccer or do whatever “other things” he likes to do near the operation. From a planning perspective, this would require the deliberate location of what might be called social service support centers, akin to the kind of infrastructural incentives that are used elsewhere to create “satellite downtowns” and industrial parks. Because of its tradition with central planning, Cuban authorities may be better placed than their counterparts in other parts of the world to locate such amenities on a regionally planned basis.²¹¹ Similarly, they could implement an idea like the “enterprise zone” popular in the United States as a technique to help integrate agricultural uses in the core of deteriorating cities.²¹² Of course, such efforts require financial resources to construct. However, particularly if the connection of urban agriculture to international tourism, Cuba’s new big foreign exchange earner, is stressed, it may be possible that comprehensive urban agriculture initiatives can receive ample funding.²¹³ In addition, given the fact of urban growth in the

209. Interview with a cooperative farm president, in Havana, Cuba (Aug. 14, 2002) (notes on file with author).

210. *See id.*

211. The need for regional planning is now orthodoxy in much planning. *See* PETER CALTHORPE & WILLIAM FULTON, *THE REGIONAL CITY* (2001).

212. *See, e.g.*, JUERGENSMEYER & ROBERTS, *supra* note 204, § 4.10.

213. In fact, this is happening: “With the state looking to reduce its import bill of \$235 million for the tourist industry, a new government measure now allows co-ops to market high-quality produce to tourist facilities, granted that two state agencies . . . serve as intermediaries. The co-ops are paid with credit in dollars that can be redeemed at certain stores.” SINCLAIR & THOMPSON, *supra* note 3, at 31-32. Moreover, Cuban land-use authorities recognize the beneficial linkage of tourism and urban agricultural production. Hernández, *supra* note 29, at 204-05.

Tourism is now Cuba’s biggest hard currency earner; *see supra* note 160, a development that has not escaped the notice of Cuban planning officials. *See, e.g.*, José Mena Álvarez, *El sector*

twenty-first century, the need to integrate food self-sufficiency and agricultural planning with land-use planning can only increase.²¹⁴

4. Ensure that Comprehensive Plans Include Green *Agricultural* Space

As noted in the previous Part, agricultural uses are not typically welcomed as a form of open space by urban dwellers. With the possible exception of fruit trees, the sight of growing produce within a city's limits is more often perceived of as a deficit rather than as an asset.²¹⁵ Although this will change in part as a result of the increased visibility of and positive exposure and education about urban agriculture described above, changing perceptions can also be achieved by formal legal change. For example, a simple definitional matter, like embracing agricultural uses within a planning document's conception of what constitutes "open" or "green" space, could go a long way to rectifying a negative impression.

5. Integrate Land-Use and Agricultural Planning in the Comprehensive Plan

If urban agriculture is to achieve permanence in Cuba, it is essential that it play an equal and important role in the urban planning process. At

del turismo en Cuba: Diagnóstico y proyecciones, 2 PLANIFICACIÓN FÍSICA CUBA 5, 6 (2001) (copy on file with author) ("As is known, tourism in Cuba . . . is the most dynamic economic sector with a multiplier effect [on the economy]. In the last ten years tourism went from a discrete contributor to the balance of payments (around 4%) at the beginning of the decade to more than 40% at the end of 2000. That year [Cuba] received more than 1,700,000 tourists coming from diverse places." ["*Como se conoce, el turismo en Cuba . . . es el sector de mayor dinámica y efecto multiplicador de su economía. En los últimos diez años el turismo transitó de un aporte discreto a la balanza de pagos (alrededor de 4%), a principios de la década a más del 40% el finalizado año 2000. Ese mismo año se recibió más de 1 millón 700 mil turistas provenientes de distintas geografías.*"])). Although desirable for Cuba's foreign exchange-hungry economy, the development of tourism also threatens to exacerbate not only the growth of a Cuban anticommuns, as described *supra* notes 194-203, but also to increase income and other inequalities, because those involved with the tourism sector receive special privileges (both direct and indirect), and because ordinary Cubans are not granted access to tourist amenities designed for foreign visitors, developments that could undermine Cuba's socialist orthodoxy.

214. The displacement of agricultural space by urbanization is a reality in Cuba no less than in other countries at different stages of development. *See supra* note 203; *see also* MYRON ORFIELD, *AMERICAN METROPOLITICS: THE NEW SUBURBAN REALITY* 117-18 (2002); JOEL SIMON, *ENDANGERED MEXICO: AN ENVIRONMENT ON THE EDGE* 77-82 (1997) ("The rapid growth of [Mexico City in the 1950s and 1960s] was putting more and more of a strain on the valley's resources."); *cf.* CALTHORPE & FULTON, *supra* note 211, at 49 ("Conserving resources has many obvious implications in community planning. Foremost are the quantities of farmlands and natural systems displaced by sprawling development and the quantity of auto travel required to support it.").

215. Planners often find urban agriculture visually unappealing and aesthetically disruptive, as noted previously. *See* Hernández, *supra* note 29, at 202.

the national level, this appears to be happening as a matter of environmental law, as the Cuban environmental impact assessment (EIA) law includes agricultural operations or activities.²¹⁶ Furthermore, Law No. 81 requires that all "plans, programs and projects for economic and social development, whether of national, provincial or municipal character" must be conducted in conformity with the law, including its admirable commitment to the EIA process.²¹⁷ Law No. 81 further contains a commitment to "*ordenamiento ambiental*," or environmental land-use planning, which aims broadly to assure sustainable development and, more specifically, to guarantee, as part of the planning process, a consideration of the impact of human activities on the environment.²¹⁸

B. Legal Concerns

Cuban lawyers have noted the lack of coordination between property, urban development, historic preservation, environmental, and other legislation: "[t]here are cases of contradictions or legal gaps between legislation concerning the environment, monuments, and urban features in natural zones near urban or urbanizing areas."²¹⁹ To the extent that this continues to be true, the role of urban agriculture as part of the planned urban environment will not be secure.

What is needed, therefore, is a formal provision that requires collaboration between the different actors considering activities that affect the Cuban landscape. Again, informal linkages in the short-term are not sufficient.²²⁰ Otherwise, as the Cuban economy continues to open

216. Ley Del Medio Ambiente, LEY NO. 81 [Environmental Law, LAW NO. 81], *translated in* CUBAN ENVIRONMENTAL LAW 30-31 (Jerry Spier ed., 1999).

217. *Id.* art. 19.

218. *See id.* art. 21.

219. Núñez, *supra* note 135, at 68. In full, Núñez writes:

There are cases of contradictions or legal gaps between legislation concerning the environment, monuments and urban features in natural zones near urban or urbanizing areas; for example, the beaches in eastern Havana. This is a natural zone, between an area considered "urban" and urbanizing neighborhoods. It is not a historic urban center, and is not preserved with the said legislation. It is not an area recognized to be protected by environmental legislation. [*Hay casos de contradicciones o vacíos jurídicos entre la legislación sobre medio ambiente, monumentos y aspectos urbanos en zonas naturales próximas a áreas urbanas o urbanizadas; por ejemplo, las Playas del Este de la Habana. Es una zona natural, dentro de un área considerada «urbana» y urbanizada en sus inmediaciones. No es centro histórico urbano, y no se preserva con dicha legislación. No es un área protegida de acuerdo a la legislación ambiental.*]

Id.

220. *See supra* note 187 and accompanying text.

up and resources rapidly increase, other urban uses, like housing, industrial building, and tourism could well be given priority.²²¹

In establishing a formal mechanism for coordination, therefore, it is essential for planners, and especially urban land-use planners, to keep in mind that increased yields are possible on smaller spaces and that urban agriculture can proceed with a much less invasive use of the land than that occurring on large-scale rural farms.²²² In this, Cuba may be especially well-placed, given that it can draw upon the intellectual resources of its highly trained scientific community to pursue the goals of higher yields on reduced space and less intensive use of that space. Moreover, because central planning has been a characteristic feature of Cuban life since the Revolution, it may be easier in Cuba than in other countries to direct such a mandatory coordination between different planning actors.

V. CONCLUSION: SUSTAINING CUBA'S URBAN AGRICULTURAL EXPERIMENT

On September 26, 2002, the largest-ever U.S. trade show in Cuba was held in a Havana suburb. Its purpose was to showcase U.S. food and agriculture. The sponsors included a dazzling list of U.S. agri-industrial superstars—from the makers of highly processed foods like Spam, M & M chocolate candies, and Sara Lee cakes, to the products of

221. One study suggests, interestingly, that Cubans might be willing to pay up to 14% of their monthly household income for use of land dedicated to urban agriculture, providing they received improvements like improved water quality and antitheft protections in return. Patrick Henn, *User Benefits of Urban Agriculture In Havana, Cuba: An Application of the Contingent Valuation Method* (2000) (thesis presented to the faculty of graduate studies McGill University in partial fulfillment of requirements for the degree of Master of Science), at <http://www.cityfarmer.org/thesisDec2000.pdf>.

222. See *supra* note 178 and accompanying text. As Freeman notes about urban farming in Kenya, “[c]ultivation practices mentioned by urban farmers are for the most part very basic, traditional, and conservative, being dependent on hand labour with only a few simple and inexpensive tools.” FREEMAN, *supra* note 7, at 92. This was among the goals of Cuban organic farming—which includes urban agriculture: “People came to believe that productive harvests could be obtained on positive cost-benefit terms, while protecting the environment and nature, without polluting soils, water, and air, yet producing healthy foods without excessive energy use, and with reduced capital investment.” Fernando Funés, *The Organic Farming Movement in Cuba*, in *SUSTAINABLE AGRICULTURE AND RESISTANCE*, *supra* note 3, at 15. Cuban ecological practice is varied. See, e.g., SINCLAIR & THOMPSON, *supra* note 3, at 25-27; Nilda Pérez & Luis L. Vázquez, *Ecological Pest Management*, in *SUSTAINABLE AGRICULTURE AND RESISTANCE*, *supra* note 3, at 109-43. Some have, however, questioned Cuba’s rush to use biopesticides, suggesting “that many of the potential solutions being advocated in the agricultural sector carry potential but unknown environmental threats . . . [and] are being ignored . . . or cannot be properly addressed under current circumstances.” DÍAZ-BRIQUETS & PÉREZ-LÓPEZ, *supra* note 11, at 110 (examples omitted).

agribusiness giants like Archer Daniels Midland, Cargill, ConAgra, and Tyson Foods. The next day, *The New York Times* plastered a picture on its front page of Cuban President Fidel Castro at the show, gingerly fingering a plate containing a hamburger and french fries, a chocolate milk shake nearby.²²³

One could hardly imagine a more vivid illustration of the challenges Cuban agriculture will face when the U.S. embargo is lifted. Specifically, United States and other foreign agribusiness giants, eager to enter the Cuban market, anxiously await the time they can press everything from processed foods to genetically modified seeds and chemical fertilizers on the Cuban market. Despite Cuban claims that they will resist this onslaught just as they have resisted the attempts to meddle with their internal politics since the Revolution, the expansion of agricultural markets could well prove an unstoppable juggernaut.²²⁴ In a country where food purchases can require as much as two-thirds of an average Cuban's salary, the lure of comparatively cheap agricultural inputs and even cheaper food could easily lead to social unrest if not permitted by the government.²²⁵ In short, the pressure to accept cheaper U.S. and other foreign agricultural products, could well prove to be the necessity that next prods the Cuban frog to jump.

The remaining question, then, is what Cuba can do to resist that pressure. One piece of the answer to that puzzle, as both Cuban and foreign observers note, could be urban organic agriculture. Foreign food

223. The following article accompanied the picture, although appearing on a later page: Lizette Alvarez, *U.S. Agribusiness Peddles to the Proletariat in Cuba*, N.Y. TIMES, Sept. 27, 2002, at A6. See also Nancy San Martin, *Castro, U.S. Exhibitors Upbeat: Agribusiness Signs Deals with Cuba, Want More*, MIAMI HERALD, Sept. 27, 2002, at 1A; Kevin Sullivan, *At Havana Trade Show, They're Talkin' Turkey*, WASH. POST, Sept. 27, 2002, at A23. The agribusiness actors at the Cuban trade show are among those involved in the Latin American Agribusiness Development Corporation (LAAD), the policies of which were defiantly anti-Cuban. See ROSS, *supra* note 79, at 145-48 (appendix of LAAD corporation shareholders).

224. Importantly, this is an issue facing U.S. farmers as much as foreign ones. See, e.g., Barnaby J. Feder, *For Amber Waves of Data: After the Green Revolution Comes Farming's Geek Revolution*, N.Y. TIMES, May 4, 1998, at D1 (reporting on the high-tech farm of Thomas Dorr, which ranks "among the 4% of the largest commercial farms that account for 50% of the nation's agricultural output."); see also Statement of George Taylor in Opposition to the Nomination of Thomas Dorr as Under Secretary for Rural Development of the U.S. Department of Agriculture, Mar. 6, 2002, available at 2002 WL 25100115. Mr. Naylor, a family farmer in Iowa said, in part: "Thomas Dorr's publicly touted vision of the future of American agriculture embraces corporate industrial agriculture: unimaginably huge, centrally controlled grain farms, water and air polluting huge hog factories and rural development overseen by someone who believes that ethnic and religious diversity impairs economic success." *Id.*

225. See SINCLAIR & THOMPSON, *supra* note 3, at 28. The notion that Cuba could avoid such political unrest is belied by the observations of a seasoned Cuba expert like Carmen Diana Deere. See generally Deere, *supra* note 48 (discussing political volatility of food pricing).

will be easier to reject if domestically produced food is tastier, healthier, and cheaper, or at least comparable in price, to foreign food. Correspondingly, increased reliance on less intensive agricultural inputs will reduce domestic Cuban demand for foreign-produced inputs. In short, this suggests that urban agriculture is one means to help Cuba (or any nation similarly placed) to benefit its population and its balance of payments at the same time. As this Article documents, urban agriculture neither needs nor, in the case of chemical agents, can tolerate many of the agricultural inputs directed at large, industrial agricultural operations. Furthermore, to the extent that Cuban authorities reinforce the notion that domestic food consumption is also, in large part, about food security and self-sufficiency, its long-term permanence is more likely.

This will not happen, however, if urban agriculture does not receive sustained support, not only at the grassroots and political levels, but also at the legal and administrative levels. For this reason, the previous Part of this Article identified several areas for attention that will help secure the legal and administrative place of urban agriculture in Cuban life. Importantly, as this Article suggests, the Cuban experiment with urban agriculture is less unusual than it might appear. Cubans, unsurprisingly perhaps, tend to view their experience with urban agriculture as unique. This owes largely to the exceptional circumstances that gave rise to Cuban urban agriculture, and specifically the limited food production and availability of the Special Period. Yet in actual fact, the Cuban pattern of urban agriculture bears many characteristics in common with efforts elsewhere in the world, developed and less so.²²⁶ In this realization, Cubans and urban farmers everywhere should gain strength.

Concerns about urban agriculture include, among others, protests on aesthetic grounds, a desire to use land for "better" or "typical" urban uses, and environmental concerns about the practice. Simultaneously, however, global experience with urban agriculture demonstrates the reality that, through careful planning, deliberately and thoughtfully implemented in laws and regulations that control and direct activity on the ground, these concerns can be addressed in the long run. If, finally, this happens in Cuba, urban agriculture there will insure not only that the Cuban frog is not again forced to jump, or risk being eaten by foreign agribusiness interests, but will be able to sit happily by its Caribbean pond, in the middle of a Cuban metropolis, having eaten well.

226. For a helpful summary of global urban agriculture, see SMIT, *supra* note 190.

